NC Region, Area 2

Integrated Roadside Vegetation Management Plan

Washington State Department of Transportation
Maintenance and Operations Division

Version 1

Intro

Summary

The Washington State Department of Transportation (WSDOT) manages approximately 840 miles of roadside right-of-way throughout Grant, Adams and Franklin counties. This right-of-way is part of the state highway system including Interstate 90, US 395, US 12, SR 17, 26, 24 as well as a number of other state routes in the area. A map of state highways and routs in this area is attached on the following page.

As a landowner in this area WSDOT is required to control all listed noxious weeds that occur on this right-of-way by state law (RCW 17.10 and 15.15.010). It is important to WSDOT to not only meet the legal requirements, but also to consider the needs and concerns of adjacent landowners in this area.

In order to better manage these roadsides WSDOT is in the process of developing an Integrated Vegetation Management Plan (IRVM) for this area. This plan will serve as the primary guidance document for maintenance of roadsides in this area and will provide detailed weed control and planting guidance as well as overall policy and procedures. This plan supports WSDOT's long-range goals of managing these roadsides to:

- Reduce maintenance costs
- Improve weed control
- Enhance roadside vegetation by providing stable, sustainable plant communities

The attached plan consists of four main sections, 1) introduction, 2) description of roadside concepts and WSDOT policies, 3) the main body of the plan document and 4) the appendices. The "**Introduction**" provides a background that has lead to the development of the plan as well as references to other pertinent guidance documents. The "**Description Section**" deals with roadside character and maintenance considerations and gives the reader an overall understanding the WSDOT roadside program. The "**Plan**" is the main body of the document and includes detailed descriptions of specific maintenance activities, policies and objectives. The "**Appendices Section**" contains prescriptions for weed control and revegetation, noxious and nuisance weed locations, locations of special maintenance areas, forms and records, and a list of local public and private stakeholders.

This plan is a dynamic document that will be developed and updated over time with input from a variety of sources. WSDOT will be requesting comments and suggestions from local private and public entities during 2005-2006 by public notifications, letters and personal communications. A working draft version of the IRVM plan will be accessible in an electronic form at http://www.wsdot.wa.gov/maintenance/vegetation/default.htm or available in hard copy upon request. Please contact Gary Haag, Lionel Heinold or James Morin at the numbers listed below for questions or comments.

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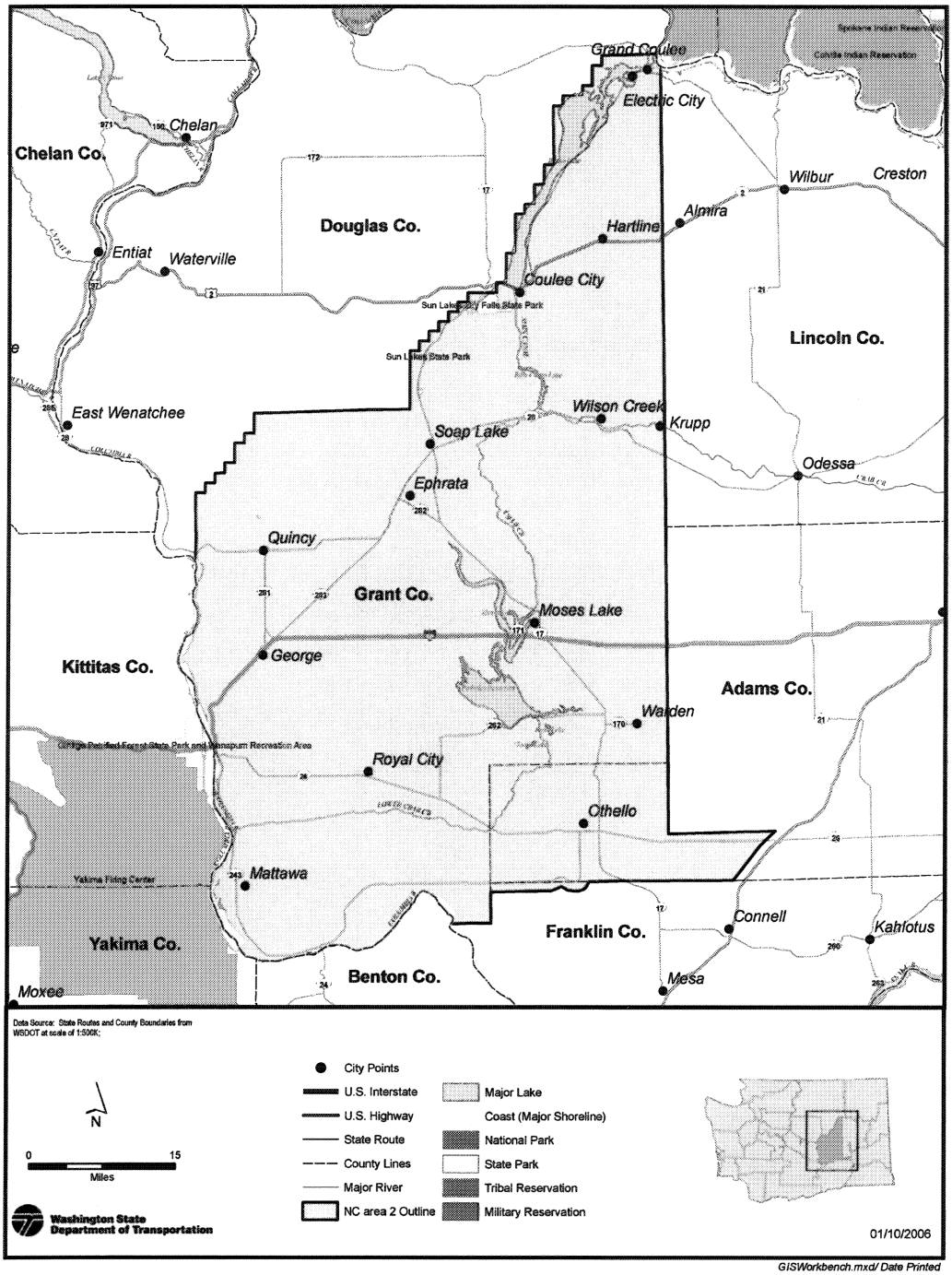

North Central Region, Area 2 Vicinity Map
Figure 1

The Washington State Department of Transportation (WSDOT) has completed a Programmatic Environmental Impact Statement on its roadside vegetation management program. This study responded to a wide spectrum of public comment with the selection of a preferred alternative titled Locally Based, Long-Term Planning Integrated Vegetation Management. Integrated Vegetation Management (IVM) is a decision making process that applies the principles of Integrated Pest Management as defined in state law (RCW 17.15.010) to the management of roadside vegetation.

The successful implementation of IVM, within the WSDOT maintenance program, is dependent on the development of a statewide roadside management planning system, incorporating site-specific roadside vegetation management plans for all highways in the state. Success within the maintenance program is also dependent on allocation of sufficient funding to accomplish vegetation maintenance activities as described in this plan for NC Region, Area 2. In the long-term, successful implementation statewide is dependent on the allocation of funding through project development and construction for roadside restoration work in conjunction with projects.

This document serves to facilitate the implementation of the preferred alternative from the EIS, compliance with RCW 17.15.010 and the intent of The Puget Sound Highway Runoff Program (WAC 173-270), and state policy for roadside management as defined in the Roadside Classification Plan (WSDOT 1996), for the state highways in NC Region, Area 2. It defines the vegetation maintenance processes and agreed upon long-term goals and objectives for roadside vegetation specific to state highways NC Region, Area 2. This plan and the statewide IVM planning system are intended for use primarily within the WSDOT maintenance program. The goal in developing and implementing this plan is to achieve the best and most consistent roadside maintenance practices throughout the corridors in NC Region, Area 2 and to maximize the efficiency and effectiveness of maintenance program delivery over time. Success in meeting this goal will be measured by the improvement of the overall health of the roadside, a resulting minimization of roadside vegetation maintenance costs and a corresponding minimization of herbicide use over time.

WSDOT Roadside Policy

WSDOT's management of roadside vegetation is carried out through two separate but coordinated programs. Policy and practice in roadside design and development is intended to compliment and support policy and practice in roadside maintenance over the long-term.

A complete description of WSDOT's roadside maintenance policy, typical roadside management zones, and listing of all functional objectives can be found in Chapter 6 of the 2002 **Maintenance Manual** (WSDOT M51-01, March 2002). Policy specific to the various roadside management zone objectives for NC Region, Area 2 can be found in the section of this document titled Maintenance Activities and referenced appendices. More information on the application of IVM for Roadsides can be found in the document **Integrated Vegetation Management for Roadsides** (WSDOT, July 1997). These documents also contain guidance for policy and procedures relating to vegetation maintenance aspect in storm water management as described in the **Highway Runoff Manual** (WSDOT M31-16, February 1995). Definition of maintenance practices within designated Environmentally Sensitive Areas can be found in the **Regional Road Maintenance Endangered Species Act Program Guidelines**, (Regional Road Maintenance Technical Working Group, Current Version)

For project development and construction, WSDOT roadside policy is defined in the **Roadside Manual** (WSDOT M25-30, July 2002), and the **Roadside Classification Plan** (WSDOT 1996).

Consultation with Other Agencies and the Public

WSDOT is consulting with the Washington State Department of Ecology on its overall roadside vegetation management program as it relates to storm water runoff. WSDOT has also

participates in the Interagency Integrated Pest Management Coordinating Committee, established under RCW 17.15 and chaired by the Washington State Department of Agriculture.

In the process of developing and implementing the plan for NC Region, Area 2, WSDOT will meet as necessary with the general public, local government, and any local special interest groups to collect input on the plan, and make adjustments where possible to address local concerns.

Additional References
Additional information and copies of the documents referenced in this plan are available through the Internet at addresses listed below, or by contacting the WSDOT Headquarters Highway Maintenance Office at: PO Box 47358, Olympia, WA 98504-7358, or (360) 705-7850.

Roadside Maintenance Program information:
http://www.wsdot.wa.gov/maintenance/vegetation/

Roadside and Site Development Program information:
http://www.wsdot.wa.gov/eesc/design/roadside/

Roadside Vegetation Management Programmatic Environmental Impact Statement:
http://www.wsdot.wa.gov/maintenance/pdf/Roadside_Vegetation_Management_12-93.pdf

WSDOT Maintenance Manual:
http://www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/MaintenanceManual.pdf

Integrated Vegetation Management for Roadsides:
http://www.wsdot.wa.gov/maintenance/vegetation/

Highway Runoff Manual:
http://www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/HighwayRunoff2004.pdf

Regional Road Maintenance Endangered Species Act Program Guidelines:
http://www.wsdot.wa.gov/maintenance/roadside/esa.htm

WSDOT Design Manual:
http://www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/DesignManual.pdf

WSDOT Roadside Manual:
http://www.wsdot.wa.gov/fasc/engineeringpublications/Manuals/RoadsideManual.pdf

WSDOT Roadside Classification Plan:
http://www.wsdot.wa.gov/eesc/design/roadside/pdf/RCP_1.pdf

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The roadside in NC Region, Area 2 is predominately rural, or open shrub-steppe in character with the landscape consisting of natural or agricultural mixed with some farms and orchards. A number of semi-urban classifications exist around the towns in the area where built elements are more common. Natural vegetation in this area consists of low growing, drought tolerant bunch grasses and shrubs. Precipitation in is very low during summer months typically not reaching more than 6-8 inches throughout NC Region, Area 2. Roadside vegetation maintenance practices are intended to highlight and enhance the natural character of the visual environment while maintaining operational needs and controlling invasive plant species.

Visual Standards

Implementation of this management plan will have minor, positive impacts on the visual quality of highway corridor over time. The plan is intended to direct activities and practices to encourage the establishment of desirable roadside vegetation and to reduce lifecycle maintenance costs. It is also intended to reduce populations of noxious and nuisance weeds over time in areas where they have become established, which will have a positive impact on visual quality.

Visual quality is an important consideration in roadside vegetation management, especially along highly scenic corridors. This Maintenance Area contains the Coulee Corridor Scenic Byway on State Highway 17 from State Highway 395 to Brewster. Vegetation management practices along this highway will maintain the overall natural appearance of this character type through the management of predominately native vegetation. In areas where native plants are not appropriate, care will be taken to establish plant communities that maintain a natural appearance. Maintenance activities in areas outside of the vegetation free zone at the pavement edge (Zone 1) will encourage grasses and stable native plant communities through the selective removal of competitive noxious and nuisance weeds.

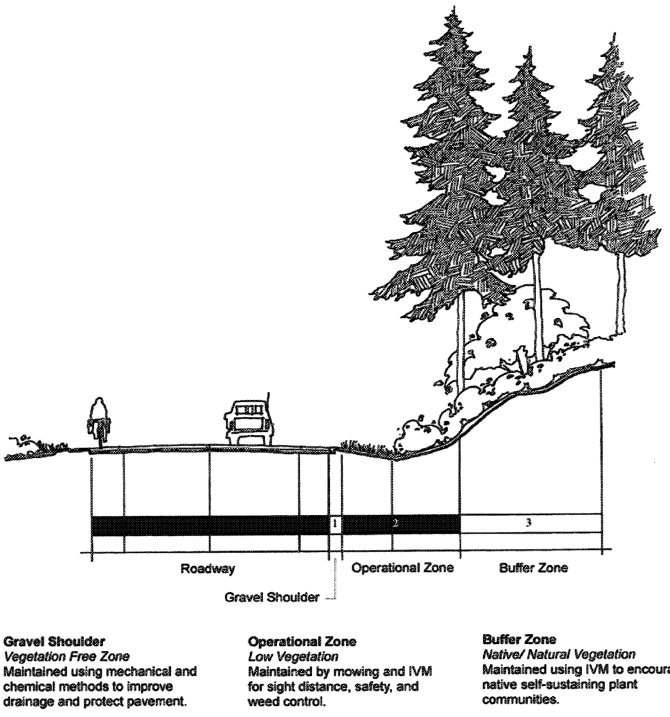
Over time, implementation of this management plan will alter the appearance of the existing roadside landscape in many areas by gradually removing large stands of non-native nuisance vegetation that currently dominate certain sections of WSDOT roadsides. This will result is an improvement of the visual quality of these areas by reestablishing and/or enhancing native plant communities.

Operational Zones
WSDOT roadsides are divided into several zones for the purposes of assigning management objectives, maintenance intensities, and thresholds for triggering vegetation maintenance actions. Noxious weed species designated for control by state and county law are controlled throughout all zones. As per the WSDOT **Maintenance Manual** (M51-01, March 2002), roadside vegetation management zones are as follows:

Zone 1 – Where necessary, a vegetation free gravel shoulder is maintained as a 4'-foot wide strip to provide for key operational, safety and pavement preservation needs.

Zone 2 – The operational zone extends from the edge of Zone 1, or the pavement edge, to a width necessary to provide for safe errant vehicular recovery, maintain sight distance at corners and intersections, and provide for other operational, safety, and environmental functions.

Zone 3 – In areas with sufficient right-of-way width, a buffer or transition zone extends from Zone 2 to the right-of-way line to provide a buffer or transitional area between the highway facility and adjacent land uses. This area is maintained selectively, and to the greatest degree possible as a self-sustaining plant community, to minimize erosion as well as the growth of weeds and undesirable trees and brush.



Typical Roadside Vegetation Management Zones
Figure 2

Not all maintenance zones will occur along state highway on NC Region, Area 2. In many cases the narrow width of the right-of-way or adjoining land-use, limits the operational zones to Zone 1 and a narrow Zone 2 only.

Special Considerations

Environmental Sensitive Areas

In response to the Endangered Species Act and the listing of threatened and endangered aquatic species in Washington State, current WSDOT policy provides for a 300-foot buffer around designated sensitive areas where certain maintenance activities are modified to reduce impacts on natural aquatic systems. There are numerous locations where the highway comes within 300' of priority sensitive aquatic habitat in NC Region, Area 2. Priority sensitive aquatic habitats are defined as medium to high quality wetlands, standing water bodies, and streams and rivers, within the ordinary high water mark. With regard to vegetation management and the use of herbicides, the methods and procedures as defined by WSDOT policy and the contents of this plan will serve to help minimize the impact of the highway and maintenance operations on the environment within these 300' buffers. These buffers have been identified in tabular and map form as well as marked and identified on the roadsides.

Herbicide sensitive Areas

An Herbicide Sensitive Areas consist of all locations within 60' of salmon bearing streams or water body. Herbicide Sensitive Areas as described in court order of Washington Toxics Coalition vs. EPA (http://www.epa.gov/EPA-PEST/2004/March/Day-24/p6610.htm) occur throughout this maintenance area. Only approved herbicides will be used in these areas (http://agr.wa.gov/PestFert/EnvResources/Buffers.htm#maps).

Special Maintenance Areas

This plan also defines and identifies areas with unique roadside maintenance requirements or where arrangements exist due to the surrounding land use, neighbor concerns or specific highway related functions. Special maintenance areas in NC Region, Area 2 include highway roadsides sections with agreements for maintenance by neighbors. These areas are further defined in **Special Maintenance Areas, Section 3**.

Public Notification of Herbicide Applications

WSDOT is required by law to notify chemically sensitive individuals on file with Washington State Department of Agriculture, where the residing property abuts the highway right of way and the residence is within ½ mile of the property line. Notification to chemically sensitive individuals is accomplished by letter and/or phone conversation prior to each application. For specific herbicide application schedules, the roadside vegetation maintenance supervisor can be reached at 509.765.6145.

Herbicide Safety

When applying herbicides WSDOT takes precaution to avoid any impact on human and environmental health, and to ensure herbicides do not move off target. Applications are made only by trained and licensed employees following all state and federal regulations as well as all recommendations and restrictions given on the individual product labels as approved by the US Environmental Protection Agency.

WSDOT has also conducted a risk assessment for the herbicide products and application methods used on state highways. Toxicological impacts of WSDOT practices were evaluated for human health (both operators and the general public), for aquatic ecosystems, and terrestrial wildlife. The findings of this assessment are summarized in a series of fact sheets for the individual herbicides used by WSDOT. These fact sheets can be viewed and downloaded through the Internet at: http://www.wsdot.wa.gov/biz/maintenance/htm/risk_assessment.htm, or copies may be obtained by calling the WSDOT Headquarters Maintenance Office at (360) 705-7850.

WSDOT Employee Training and Education

Perhaps the most important key to success in the implementation of this plan is the education and training of the maintenance employees responsible for delivery of the program on a day-to-day basis. This plan and the information resources it provides is intended to supplement and enhance existing training and education opportunities already in place. Training and education for employees engaged in delivery of the roadside vegetation management NC Region, Area 2 will include:

- Participation in an annual one-day spring review of vegetation management needs and activities from the previous year, and planning for the coming year, including the maintenance crew(s), supervisor, and area maintenance superintendent and/or assistant superintendent.
- Development of a field guide using representative photographs taken along the highway in NC Region, Area 2 to illustrate key aspects of IVM treatment. This will be developed over the first several years of plan implementation.
- Attendance at the annual statewide WSDOT Roadside Vegetation Management Workshops, where there is a focus on IVM tools and procedures, proper and safe use of herbicides, and lessons learned from around the state.
- Ongoing participation and communication with the public and private sector. This includes involvement in local weed board meetings, public events as well as communication with neighboring landowners and municipalities.

Roadside Design and Construction Considerations

Highway and utility construction in many cases has a significant impact on drainage, soils and vegetation adjacent to the paved roadway. WSDOT policy and practice for restoring the operational, environmental and visual functions disturbed by construction is based on the guidelines found in the Roadside Classification Plan (RCP) (WSDOT 1996), and the Roadside Manual (WSDOT M25-30, July 2002).

Internal agency coordination between the Design, Construction, and Maintenance programs is imperative to a comprehensive roadside vegetation management plan. A commitment to increasing communication in these areas is an important component in an ongoing effort to reduced lifecycle costs and improve roadside vegetation. This commitment has been recognized and agreed to by the regional management team.

Below is a list of design/construction projects that may have impacts to roadsides in the next 2-4 years:

- SR 17 MP 21.80 to 27.79 2006 Paver
- SR 26 MP 1.17 to 42.56 2007 Paver
- *WSDOT North Central Region Projects Link: http://www.wsdot.wa.gov/regions/northcentral/projects/*

Below is a list of permitted utility projects in the North Central Region, Area 2 that are scheduled for construction within the next 2-4 years.

- *There are no utility construction contracts planned for the near future.*

Control and management of roadside vegetation is an on-going cycle, and a resource intensive process. This plan is intended to help guide vegetation management activities through a series of steps that includes:

1. Identification and location of environmentally sensitive areas and areas with special vegetation maintenance considerations
2. Definition, locations, methods, and timing for carrying out annual vegetation maintenance activities
3. Definition, identification, and locations of all vegetation problems requiring treatment using the Integrated Vegetation Management (IVM) decision-making process and recommended, species-specific, best management practices (BMP) along with the ongoing monitoring and evaluation of treatments in these locations

The detailed description of vegetation management activities for the NC Region, Area 2 is included in this document in the following sections: Section 1, Routine Maintenance Activities, page 15; Section 2, IVM Activities page 16 and Section 3, Special Maintenance Areas, page 24. Prescriptions for routine maintenance activities and IVM treatment options are included in **Appendix A**.

NC Region, Area 2 Management recognizes and supports the general IVM concepts of decision making as described in Chapter 1 of the WSDOT Manual, **Integrated Vegetation Management for Roadsides**. This process involves evaluating and selecting appropriate control methods including; chemical, cultural, mechanical and biological to improve long term control of noxious and nuisance weeds. In support of this goal several revegetation projects are on-going, including the George and Murphy's Corner interchange projects on I-90 in the vicinity of MP. 174. These projects alone represent approximately 22 acres of roadside that will be rehabilitated with native vegetation. Several other test plots are in various stages of establishment and evaluation in the Areas as well. The general goal of these test and revegetation plots is to provide effective noxious and nuisance weed control while developing sustainable, low cost roadsides. These plots will also give WSDOT an opportunity to evaluate planting methods, species selection and site maintenance techniques. As experience increases and time and funds become available, these techniques will be applied to other roadsides locations as appropriate. A description and list of these test plots are found in Table 3.3 of this document, page 26 and in Appendix C.

Annual Vegetation Maintenance Cycle

Vegetation management activities typically begin each year in the spring and continue through the fall, with some activities such as danger tree removal and some tree and brush control activities occurring throughout the year. An overview of a typical roadside maintenance season is as follows:

Early Spring

At the start of the active growing season, maintenance technicians apply a band of soil-residual, non-selective herbicide at the edge of the pavement on most roadsides. This results in a vegetation free zone approximately 4' wide. These treatments are further described in Section 1 and Appendix A of this document.

Spring and Summer

Throughout the growing season roadside maintenance activities are focused on controlling noxious and nuisance weeds in zone 2 and 3. Monitoring also occurs throughout this time to identify new areas or situations requiring treatment, and to evaluate treatments made earlier in the year or in the previous season. Weed control activities are dependent on timing in relation to the growth and lifecycle of the weeds or undesirable vegetation being treated. These activities are conducted in accordance with the IVM treatment plans for each location, following the management prescriptions described in Sections 1, 2 and Appendix A. All IVM activities are documented, monitored and evaluated using the forms in the IVM Planning and Treatment Database.

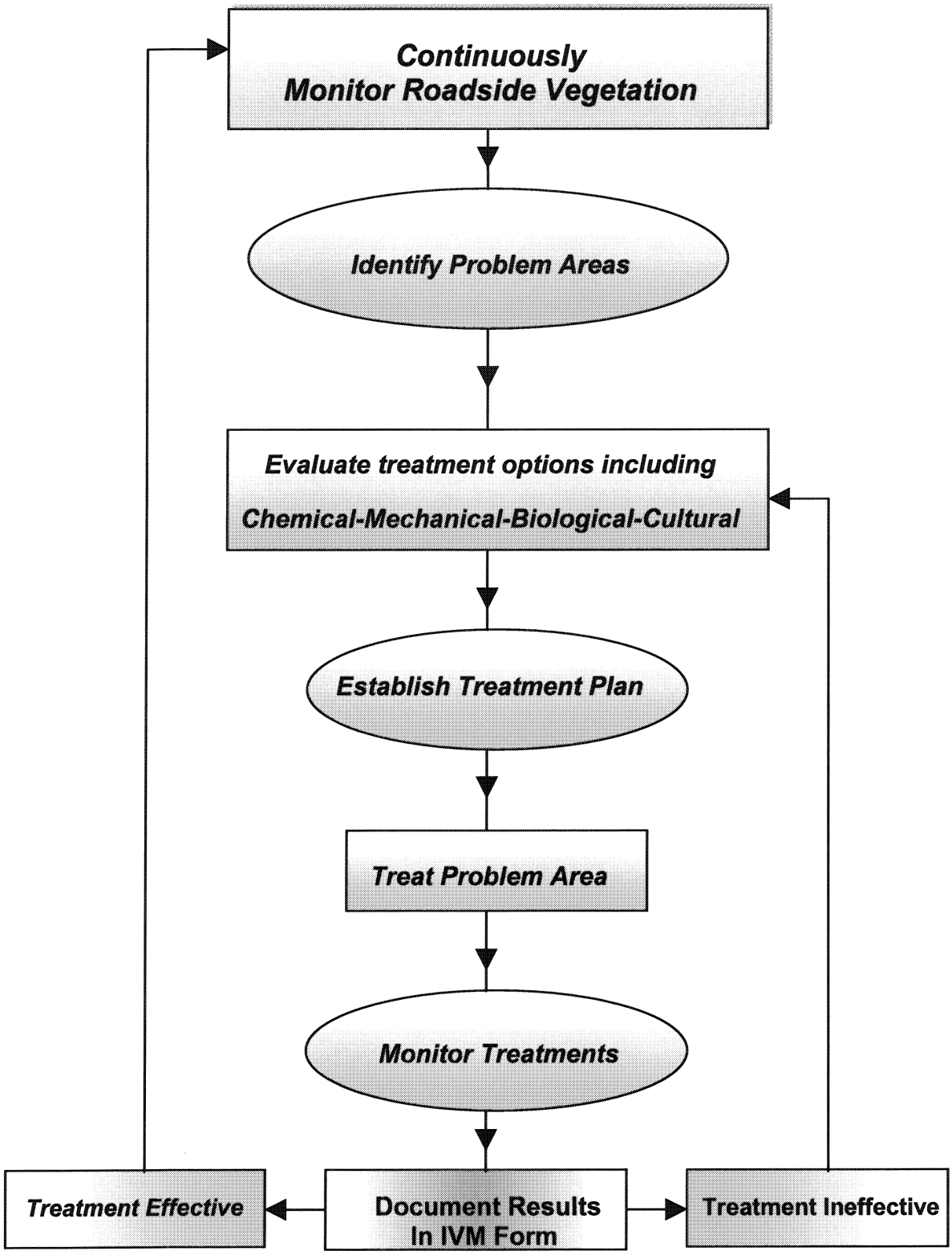
Selective mowing activities during this period are focused on eliminating weed skeletons in an effort to get better control of newly sprouting weeds and controlling weed seed production. This type of mowing typically takes place in late April-May and is focused primarily on heavy infestations of noxious and nuisance weeds. Mowing height is held to a minimum of 8" above ground in an effort to limit contact with the ground or damage desirable plants. Some selective mowing or trimming for site distance occurs on an as needed basis. Refer to Section 2.2 and Appendix A for more information on mowing.

Fall and Winter
Activities in the fall and winter are limited to some selected mowing of tall weeds if needed. This may facilitates better weed control in the following spring by eliminating the over-story of dead weeds. In selected areas a band of residual chemicals may be applied to road shoulders. These activities are conducted as time allows given other highway maintenance needs and accomplishment of weather dependent winter maintenance operations. These activities will be conducted in accordance with the documented long-term IVM treatment plans following the management prescriptions described in Appendix A and under NC Region, Area 2 **Roadside Vegetation Management Plan**, in Sections 1 and 2.

Action Thresholds
An action threshold is the point at which an individual plant or infestation begins to impact highway operations, WSDOT's legal obligations, or other maintenance program objectives. At this point the vegetation is considered a target for control, is subject to the development of treatment plans, and is prioritized for maintenance action.

The action threshold for some activities is exceeded on a routine or annual basis, such as the maintenance of a vegetation-free strip adjacent to the edge of pavement (Zone 1), or where regular mowing and/or trimming is required to preserve sight distance at curves, road approaches, or intersections. In other cases action thresholds are set at varying levels for individual plant species such as noxious or nuisance weeds, or for potentially large and dangerous trees growing too close to the highway. Action thresholds are described for individual plant species and/or types of vegetation as part the Integrated Vegetation Management Prescriptions table shown in Appendix A.

The Integrated Vegetation Management Decision-Making Process
Within maintenance, the IVM decision-making process is applied in any situation where weed control is desired. This decision-making process relates to the process of evaluating the problem and establishing a plan that incorporates the most appropriate control method for the specific site. Additional information and guidance on the application of IVM can be found in the publication **Integrated Vegetation Management for Roadsides** (WSDOT, July 1997). **Figure 3** below diagrams the IVM decision-making process used by maintenance in the field.



The IVM Decision-Making Process
Figure 3

Plan

1. ROUTINE MAINTENANCE ACTIVITIES

Roadside maintenance activities are considered routine when regular annual treatment is required because vegetative growth annually or regularly exceeds action thresholds. Typical routine maintenance activities include maintenance of Zone 1 and certain types of mowing and trimming.

1.1. Routine Shoulder Maintenance (Zone 1)

1.1.1. Policy and objectives

Historically the edge of pavement, or zone 1, has been maintained to be free of vegetation. This vegetation free zone has typically varied from 10' to over 15' in width. The objectives of this policy was to promote positive surface and subsurface drainage, protect asphalt shoulders from deterioration due to vegetation growth, facilitate preservation and maintenance of roadside hardware (guardrails and delineators), manage sight distance, control noxious weeds and to function as a firebreak. WSDOT is now in the process of reevaluating this policy and objectives on a statewide basis. This evaluation includes installing tests plots, conducting a study to evaluate alternative methods and a focus on defining site-specific goals and objectives.

The goals of the interim zone 1 policy for NC Region, Area 2 are as follows:

1) Identify opportunities to reduce zone 1 width where practical
2) Develop desirable stable vegetation and reduce routine maintenance and lifecycle costs
3) Continue to control noxious and select nuisance weeds
4) Meet site-specific operational needs, i.e. drainage, site distance etc.
5) Implement appropriate alternatives as they become available

The width of zone 1 has been reduced in recent years from an average of approximately 10-12' to what is now the standard width of 4' as measured from the edge of pavement along the slope of the shoulder.

No residual herbicides will be applied in herbicide sensitive area buffers. In these buffer zones, zone 1 will be maintained with glyphosate only. Any nuisance or noxious weed species that emerge in these areas will be controlled by mechanical control or with an approved selective herbicide application. Where guardrail is present in these areas, vegetation will be controlled around the base of hardware with hand mowing or routine annual applications of glyphosate. These areas are identified in the field with yellow pavement markings.

Zone 1 may be greater or less than the 4-foot standard width under some circumstances for certain operational functions. Prior to application, the area maintenance superintendent must approve all exceptions to standard width applications. These locations will be included on future updates to the area maps and plan documents.

Exception Areas (No Zone 1)

Areas where Zone 1 <u>will not</u> be maintained in NC Region, Area 2:

- Shoulders without guard rail in close proximity (60') of sensitive aquatic habitat (maintained w/glyphosate only)
- When required for legal environmental compliance
- By agreement/permit where maintenance is done by others
- Within designated zone 1 "test plot" areas.

Variance Areas (Wider than Standard Width)
Areas where Zone 1 may be greater than the standard 4' feet include:

- Where required for maintenance or visibility of highway hardware such as guardrail or fencing.
- Special areas designated as high fire risk.
- Where maintaining desirable vegetation is impractical such as natural rock or gravel ditches.
- Turn-outs or viewing areas
- To facilitate sight distance and visibility at intersections or gore points where mowing is not practical.
- In locations where a large vegetation free zone is required in order to be consistent with adjacent management techniques. As an interim measure to control noxious and nuisance weeds in an area that is not feasible to restore or reduce due to extreme weed pressure and lack of funding.
    - I-90 East and West Shoulders and median MP. 143 to 154 10-14' wide
    - I-90 Median MP. 161 to 165 (10-14')
    - I-90 Shoulders East and West MP. 179 to 182 (10-14')
    - I-90 Median MP. 179 to 192 (10-14')

1.1.2. Action Thresholds (Zone 1):
An action threshold refers to the point at which action must be taken to control an infestation of weeds. The action thresholds for treatment of zone 1 are listed below.

- Presence of listed noxious or nuisance weeds
- Sight distance limited by vegetation within zone 1
- Damage to the pavement edge as a result of vegetation

1.1.3. Methods (timing and procedures)
Zone 1 will be maintained by an annual application of non-selective residual herbicide applied according to label instructions and in compliance with all state and federal regulations.

Applications will be made in the spring typically beginning in March. They will be planned and carried out depending on weather patterns and precipitation events. In some cases a focused fall application may take place depending on weather patterns and weed conditions.

Zone 1 Herbicide Sensitive Areas will be maintained with glyphosate or other approved chemical that has been approved for use within this 60-foot buffer. Special care will be given to these sensitive areas to insure that there are no impacts to the aquatic environment. Zone 1 chemical applications will be documented on the WSDOT Pesticide Application Record.

1.1.4. Prescriptions
See **Appendix A, Zone 1 Maintenance Prescriptions**

2. INTEGRATED VEGETATION MANAGEMENT ACTIVITIES

For all vegetation management needs not addressed through routine maintenance as described above, activities are planned and carried out using the principles of Integrated Vegetation Management (IVM) and the decision making process described in Figure 3 (page 14). This is consistent with requirements in state law pertaining to the use of Integrated Pest Management (IPM), as defined in Chapter 17.15 RCW. IVM is a coordinated decision making process that uses the most appropriate vegetation management methods and strategy, along with a monitoring and evaluation system, to achieve long term roadside maintenance goals and objectives in an environmentally and economically sound manner. The result of utilizing the IVM approach is the establishment of stable, low maintenance native or naturalized plant communities on the roadside that are compatible with highway maintenance and safety objectives, preservation of environmental quality, weed control requirements, and the concern's of WSDOT's customers and neighbors. Long term, the use of the IVM approach can reduce the intensity and cost of maintenance as well as minimizing the need to use herbicides.

2.1. Integrated Vegetation Management Planning and Tracking Database

2.1.1. Description

One of the keys to successful use of IVM is carrying out activities in accordance with a long-range plan and to follow up with monitoring and evaluation of treatment results. To facilitate this, IVM forms and a database have been created for statewide use by WSDOT maintenance. This system is being tested as part of the initial development of Roadside Vegetation Management Plans and will be modified and refined as technology in this area continues to develop over the coming years.

2.1.2. Sample forms

A copy of the Integrated Vegetation Management Form and Application Record are included in **Appendix D, Forms and Records**.

2.1.3. Instructions for use

Maintenance supervisors and technicians can access the IVM Record through the existing pesticide application record keeping system available from the area office. The IVM form should be used whenever evaluation of a method or product is desired. Entries should include future evaluation dates as well as a description of the site and current conditions.

2.2. Mowing Operations (Zone 2)

2.2.1. Policy and objectives

Zone 2 is also referred to as the operational zone and is maintained to fulfill operational, safety, and environmental functions of the highway roadside. Vegetation management considerations include noxious and nuisance weed control. Maintenance techniques used to accomplish these objectives must consider impacts to sensitive areas, erosion control, water quality, long-term vegetative growth and overall visual quality.

Zone 2 is measured from the edge of Zone 1 (or pavement if Zone 1 is not present) to the designated errant vehicle recovery zone for a given segment of highway, or to the width required to provide site distance at curves and intersections, or visibility of highway signs. Maintained recovery zone widths are based on a variety of factors including design speed, slopes, and the presence of guardrail. The typical recovery zone width for highways in NC Region, Area 2 is

approximately 30 feet from the outside pavement stripe, or the width of the right of way if less than 30 feet. The recovery zone must be free of vegetation with trunk diameter greater than 6". Where guardrail exists there is no requirement to maintain the vehicle recovery zone.

The goal of vegetation management in Zone 2 is to encourage the growth of stable native plant communities through routine maintenance activities while meeting operational and safety needs. Mowing and the removal of competitive nuisance and noxious weeds will be accomplished in a way that contributes to this goal, as described in Section 2 below. Vegetation management techniques will be used to maintain the predominately natural, but low growing appearance of the roadside.

2.2.2. Methods (timing and procedures)

Mowing will be accomplished throughout the NC Region, Area 2 on an as needed basis. Timing, frequency and mower height are critical issues when planning mowing operations. Mowing needs and prescriptions will vary by location. Mowing can be an effective form of weed control, but done incorrectly can cause damage to desirable vegetation and enhance the growing environment for unwanted weeds. It's important when conducting a mowing operation to consider timing, mowing height and to take the time identify goals of the operation. In some rare instances a lower mowing height may be required, if necessary, it must be approved by the Area Superintendent prior to conducting the operation.

Mowing in Zone 2 will take place as needed when prescribed to meet specific goals. Mowing will take place after desirable native grasses have reached dormancy stage or set seeds, typically this occurs in late July or Aug. Perennial native grasses in this environment do not respond well to repeated mowing during the active growing period. Early mowing will often result in a depletion of the grasses resources and vigor, as the stand weakens it becomes more susceptible to diseases and less capable of competing with weeds. The long-term result will be a reduction of desirable grasses and an increase in noxious and nuisance weeds.

Mowing equipment will be set to a minimum height of 8 to10 inches above ground. This minimum mowing height helps to reduce exposing bare soil caused close mowing on uneven ground. Bare soil contributes to erosion and provides an opportunity for weed infestations to begin along the right-of-way. Maintaining the grass stand at the maximum allowable height should always be the objective. This will not only improve grass stand health but will also improve competition with weeds by shading weed seedlings.

Prior to conducting a mowing operation there are a number of considerations that must be addressed. Review items 1-7 below, then review and follow the appropriate prescriptions in Appendix A. There will be no mowing of desirable vegetation including grass, forbs, shrubs or woody species without prior authorization of the Maintenance Area superintendent.

1. **Identify Goals Of Mowing Operation:** Before prescribing mowing as a preferred alternative it is important to clearly understand what the goals of the operation are. These goals should not only be understood by the manager or decision maker, but also must be clearly communicated and understood by the operator as well. Goals may include; control of seed production, maintenance of sight distance, control of vegetation around

hardware features, control of noxious or nuisance weeds in an environmental or crop sensitive area or the removal of weed skeletons for the control of newly emerging weeds.

2. **Identify Appropriate Timing:** When mowing in a stand of established dry land perennial grass, particularly native varieties, it is important to consider timing. Mowing shall not occur until after desirable grasses have reached dormancy or set seed, typically in July-August. If the goal is control of weed seed production in an area where no desirable vegetation is present, mowing should take place as late as possible but prior to seed development. This will increase the likelihood that the target plant will not produce seed.

3. **Identify Target:** Identify target plant or plants to be controlled and ensure that the mowing operation will not spread these weed or exacerbate the existing problem. Some weeds, such as Japanese knotweed, can be easily spread through mowing. Ensure that the operator understands the target species and any desirable species in the area.

4. **Deck Height:** The mower deck height must be maintained at least 6-8 inches from the ground to reduce the likelihood of exposing bare soil. It is also important to maintain this deck height if the mowing operation will include desirable grasses. Close mowing may be allowed in special cases where no desirable species occurs and restoration work will immediately follow.

5. **Clean Mower:** Mowing can easily spread weed seed from infested areas to uninfested areas. It is important to clean the mower after each operation to ensure that mowing operation is not contributing to the spread of noxious and nuisance weeds.

6. **Consider Alternatives:** As with all IVM operations it is important to consider alternative methods. Mowing in NC Region, Area 2 is not a routine maintenance activity. It is a secondary form of weed control to be used on an as needed basis.

7. **Communicate:** Communication with the mower operator is critical to a successful mowing operation. The operator must understand the goals, timing, target species and desirable species before the mowing operation begins.

2.2.3. Prescriptions

See **Appendix A, IVM Mowing Prescriptions**

2.3. Noxious Weed Control

2.3.1. Policy and objectives

As defined in RCW 17.10.140, all property owners, including state agencies, are required to control noxious weeds on lands that they own and manage. Noxious weed control is a high priority for WSDOT as a result of this legal mandate as well as the fact that if they are left unchecked, levels of infestation can begin to spread at exponential rates from year to year. Noxious weeds are invasive, non-native plant species that can quickly dominate native plant communities and spread to other areas or regions. New infestations of noxious weeds often appear first in highway corridors

after being transported from other areas by vehicles or transportation of agricultural products. Without timely control, these new infestations can further spread along transportation corridors and to adjacent property. The overall cost and impact to the economic viability of the agricultural community and the health of native ecosystems can be significant. Also, some of these plants are toxic to livestock and/or humans.

WSDOT prioritizes weed control based on three legally defined weed species classification categories. Chapter 16-750 of the Washington Administrative Code lists weed species in classes A through C. Noxious weeds include all plants listed as class A, and those in classes B and C that are designated for control within each individual county.

Class A

Class A noxious weeds are non-native species with a limited distribution in the state. Immediate treatment of these new infestations is required by State law and is the top weed control priority to prevent spread into adjacent areas. North Central Region, Area 2 is located primarily within Noxious Weed Region 3 (http://www.nwcb.wa.gov/weed_list/designations.html).

Currently there is no known Class A weeds identified within the WSDOT operating right of way in NCR Area 2

Class B

Class B weeds are more widespread than Class A, with control mandated by law only if infestations are generally limited and the species are designated within the individual counties by the County Noxious Weed Control Boards. Containment, gradual reduction, and prevention of further spread are the chief management concerns of Class B species. For the purposes of roadside management in NC Region, Area 2, WSDOT will provide consistent annual IVM treatments for all known species of Class B noxious weeds designated for control by the County Noxious Weed Control Board. Treatment will continue until these species have been eradicated from WSDOT rights of way wherever possible. Priority for treatment of these infestations will be areas where control is also being accomplished on neighboring properties. Class B noxious weeds not designated for control in subject counties will receive a lower priority for control. Nuisance weeds and treatment options are described in Section 2.3 of this document.

Class B noxious weeds designated for control within Grant, Adams and Franklin Counties and currently present within WSDOT right-of-way in NC Region, Area 2 include:

Grant County:

- Myrtle Spurge (Euphorbia myrsinites)
- Meadow Knapweed (*Centaurea jacea x nigra*)
- Diffuse Knapweed (centaurea diffusa)
- Spotted Knapweed (*Centaurea biebersteinii*)
- Purple Loosestrife (*Lythrum salicaria*)
- Yellow Nutsedge (*Cyperus esculentus*)
- Perennial Pepperweed (*Lepidium latifolium*)
- Rush Skeletonweed (*Chondrilla juncea*)
- Perennial Sowthistle (*Sonchus arvensis ssp. Arvensis*)
- Yellow Starthistle (*Centaurea solstitialis*)

- Musk Thistle (*Carduus nutans*)
- Scotch Thistle (*Onopordum acanthium*)
- Dalmatian Toadflax (*Linaria dalmatica spp dalmatica*)
- Canada Thistle (*Cirisum arvense*)
- White Top/Hoary Cress (Cardaria draba)
- Puncturevine (*Tribulus terrestris*)
- Kochia (*Kocha scoparia*)

Adams County

- Myrtle Spurge (Euphorbia myrsinites)
- Meadow Knapweed (*Centaurea jacea x nigra*)
- Diffuse Knapweed (centaurea diffusa)
- Spotted Knapweed (*Centaurea biebersteinii*)
- Purple Loosestrife (*Lythrum salicaria*)
- Yellow Nutsedge (*Cyperus esculentus*)?
- Perennial Pepperweed (*Lepidium latifolium*)
- Rush Skeletonweed (*Chondrilla juncea*)
- Perennial Sowthistle (*Sonchus arvensis ssp. Arvensis*)
- Yellow Starthistle (*Centaurea solstitialis*)
- Musk Thistle (*Carduus nutans*)
- Scotch Thistle (*Onopordum acanthium*)
- Dalmatian Toadflax (*Linaria dalmatica spp dalmatica*)
- Canada Thistle (*Cirisum arvense*)
- White Top/Hoary Cress (*Brassicaceae*)
- Puncturevine (*Tribulus terrestris*)
- Kochia (*Kocha scoparia*)

Franklin County

- Myrtle Spurge (Euphorbia myrsinites)
- Meadow Knapweed (*Centaurea jacea x nigra*)
- Diffuse Knapweed (centaurea diffusa)
- Spotted Knapweed (*Centaurea biebersteinii*)
- Purple Loosestrife (*Lythrum salicaria*)
- Yellow Nutsedge (*Cyperus esculentus*)
- Perennial Pepperweed (*Lepidium latifolium*)
- Rush Skeletonweed (*Chondrilla juncea*)
- Perennial Sowthistle (*Sonchus arvensis ssp. Arvensis*)
- Yellow Starthistle (*Centaurea solstitialis*)?
- Musk Thistle (*Carduus nutans*)?
- Scotch Thistle (*Onopordum acanthium*)
- Dalmatian Toadflax (*Linaria dalmatica spp dalmatica*)
- Canada Thistle (*Cirisum arvense*)
- White Top/Hoary Cress (*Brassicaceae*)
- Puncturevine (*Tribulus terrestris*)
- Kochia (*Kocha scoparia*)

Class C

Class C noxious weeds are widely established throughout Washington or may impact the agricultural industry. Counties may require control of certain Class C weeds at their own discretion. Unless otherwise required, WSDOT classifies most Class C species as "nuisance" weeds and provides control as part of the general roadside vegetation management program. Nuisance weeds and treatment options are described in Section 2.4 of this document.

Class C noxious weeds designated for control within Grant, Adams and Franklin counties, and are currently present within WSDOT right-of-way in NC Region, Area 2 include:

Grant County:

- Canada Thistle (*Cirsium arvense*)
- St. Johnswort (*Hypericum perforatum*)
- Babies Breath (*Gypsophila paniculata*)
- Poison Hemlock (*Conium maculatum*)
- Bull Thistle (*Cirsium arvense*)
- Hoary Cress (*Cardaria draba*)

Adams County

- Canada Thistle (*Cirsium arvense*)
- St. Johnswort (*Hypericum perforatum*)
- Babies Breath (*Gypsophila paniculata*)
- Poison Hemlock (*Conium maculatum*)
- Bull Thistle (*Cirsium arvense*)
- Hoary Cress (*Cardaria draba*)

Franklin County

- Canada Thistle (*Cirsium arvense*)
- St. Johnswort (*Hypericum perforatum*)
- Babies Breath (*Gypsophila paniculata*)
- Poison Hemlock (*Conium maculatum*)
- Bull Thistle (*Cirsium arvense*)
- Hoary Cress (*Cardaria draba*)

2.3.2. Methods

Control of noxious weed species can be very difficult; therefore it is important to incorporate the concepts of IVM. In many cases herbicides are used as a means of early control. Other methods such as hand pulling, revegetation, use of biological control and various types of mechanical control must be considered for long-term management of the site. In many cases extensive seed banks are present in the soil, requiring reapplication. Timing of herbicide treatments within the growth stage of the weed species is critical to achieving complete control of perennial species. With annual species, the most important measure is prevention of seed production.

In conjunction with weed control treatments, a variety of other measures may be taken to promote natural vegetative competition through seeding, planting, and soil enhancement. Use of the IVM Record and database are essential to the execution and success of long-term control measures.

2.3.3. Action Thresholds:

The action threshold for noxious weed control is met whenever a noxious weed is present on WSDOT right of way. WSDOT is required by state law to control

and prevent the spread of all noxious weeds on WSDOT right-of-way (RCW 17.10.040). Control efforts will be initiated prior to the noxious weed producing seed.

2.3.4. Prescriptions

See **Appendix A, IVM Prescriptions, Noxious Weed Control**

2.3.5. Species Location by Milepost

See **Appendix B, Noxious Weed Locations, Table 2.2.**

2.4. Nuisance Weed Control

2.4.1. Policy and objectives

Nuisance weed control, while not required by state law, provides many positive benefits to the overall condition of the roadside, enhances ecological function by maintaining and enhancing native plant communities, reduces the potential for continuing spread of weed infestations, and enhances visual quality.

Depending on crew availability and budget, nuisance weeds will be controlled throughout the roadsides of NC Region, Area 2 as part of the overall Integrated Vegetation Management process. Priority control measures will be given to new infestations or those infestations that threaten desirable roadside vegetation. In some cases, where practical, nuisance weed infestations may be treated in conjunction with of noxious weed.

For established infestations currently identified in this plan, weed populations will be contained and gradually reduced by applying appropriate vegetation management prescriptions as funds and resources are available. Control options range from manual cutting, mechanical removal, and biological control, to targeted selective herbicide application, or combinations thereof.

2.4.2. List of species currently present

Numerous Class C nuisance weeds occur throughout NC Region, Area 2 within WSDOT right of way that are not targeted for control. In some cases they are controlled incidentally or for site-specific reasons. Nuisance weed control, while not required by state law, provides many positive benefits to the overall condition of the roadside. When time and funding are available, priority will be given to new infestations or those infestations that threaten desirable roadside vegetation. Common nuisance weed species that occur on WSDOT right of way within NC Region, Area 2 include:

- Mustard Species
- Common Mullen (*Verbascum thapus*)
- Poison Hemlock (*Conium maculatum*)
- Russian Thistle (*Salsola iberica sennen*)
- Cereal Rye (Secale cereale)
- Common Reed (Phragmites australis)
- Pepperweed (Lepidium species)
- Babies Breath (*Gypsophila paniculata*)
- Mares Tail (*Conyza canadensis*)
- China Lettuce (*Lactuca serriola*)

Nuisance weeds targeted for control in this area include Russian Thistle (*Salsola iberica sennen*), Knapweeds (*Centaurea*), Common Mullen

(*Verbascum thapus*), cereal rye (Secale cereale), and China Lettuce (*Lactuca serriola*). Other species may be targeted as needed.

There are many other species of weeds present in the area that are too common and widespread to justify treatment or attempt control. There are also new species that have only shown up in recent years and are not yet listed as nuisance or noxious weeds. Other species may be added to this list as they are identified or become priorities for control.

2.4.3. Methods

Control measures for nuisance weed are dependent on the type of plant. Species that are wide spread are treated routinely throughout the season where time and budget allows. Many of these species are treated with a combination of mowing, herbicide treatments, biological control and establishment and/or encouragement of native vegetation.

2.4.4. Action Threshold For Nuisance Weed Control

Action will be taken at the discretion of the area superintendent. WSDOT is not required to control nuisance weeds, however, action is advised where funding is available and one or more of the following instances occur as a result of a nuisance weed infestation.

- Impact to adjacent land owners
- Impact to desirable vegetation
- Nuisance weed presence reduces effectiveness of noxious weed control due to height or density

2.4.5. Prescriptions

See **Appendix A, IVM Prescriptions, Nuisance Weed Control**

2.4.6. Species Location by Milepost

See **Appendix B, Nuisance Weed Locations, Table 2.4**.

3. SPECIAL CONSIDERATIONS

Special Maintenance Areas include any sections of roadside where there are unique maintenance requirements or existing arrangements with any external organizations. Special Maintenance Areas may include interchanges, community entrances or enhancement areas, areas maintained by cities, bicycle paths, storm water retention ponds, state parks, wellheads, environmentally sensitive areas, school zones, roadsides adjacent to individual properties with current or annual no-spray agreements and new technologies.

3.1. Herbicide Sensitive Areas

3.1.1. Policy and objectives

There are a number of herbicide sensitive areas located within the region where herbicide use will be limited to reduce potential risk to the environment. Herbicide applications made for noxious or nuisance weed control, maintenance of vegetation at the pavement edge, or applications made in combination with mechanical methods for control of undesirable trees will be made in accordance with the court order "Washington Toxics Coalition vs. EPA" http://agr.wa.gov/PestFert/EnvResources/Buffers.htm#maps

The Washington State Department of Agriculture maintains a list of individuals who have been diagnosed with Multiple Chemical Sensitivity (MCS). WSDOT is required by law to notify these individuals when making herbicide applications to roadside locations if the highway right of way is adjacent to their property and their principle residence is within one-half mile of the application. Concerned individuals can obtain further information by contacting the area maintenance office in Moses Lake at **509.765.6145**.

3.1.2. Methods and Prescriptions

Activity descriptions and IVM prescriptions are included in sections above and in relevant appendices, as they relate to the various types of maintenance.

3.2. Restoration Projects and Test Plots

3.2.1. Policy and objectives

Test plots are established as part of an on-going effort to refine the Integrated Vegetation Management process. Test plots will be used to evaluate revegetation techniques, herbicide selection, species selection, evaluate soil amendments and other research activities as needed. Test plot goals, locations and duration are identified and recorded in **Appendix C**. Two revegetation test plots have been identified within NCR Area 2 for implementation in 2005/2006. The information collected from these plots will be used to deal with other similar issues throughout Area 2 and statewide.

3.2.2. Locations by Milepost, See Appendix C, Test and Restoration Plots

3.3. Adopt-a-Highway and Owner Will Maintain Agreements

3.3.1. Policy and objectives

The Adopt-a-Highway program allows private citizens, volunteer groups, and businesses an opportunity to contribute to an enhanced roadside appearance through direct partnership with WSDOT. The program improves the overall appearance of the roadside primarily through litter control, although other activities that improve the visual and environmental condition of the roadside are permitted as well including limited planting and maintenance of specific areas. Other partnership opportunities are possible through general permits and agreements. Volunteer groups that do enhancement planting on WSDOT roadsides are typically required to establish and maintain the plantings. Communities may partner with WSDOT to develop and maintain selected Community Enhancement Areas as described in the Roadside Classification Plan.

Neighboring property owners may enter into an agreement with WSDOT where they take responsibility for the vegetation management activities along the area where their property abuts state right-of-way. These "owner will maintain" agreements are established through a General Permit and are required to be renewed on an annual basis. These agreements are typically implemented in cases where a neighboring property owner desires a higher level of care in front of their business or residence, or prefers maintaining the area to avoid WSDOT herbicide applications near their home or business.

3.3.2. Locations by Milepost

Locations where partnership agreements exist for accomplishment of roadside maintenance are listed in **Appendix C, Special Maintenance Areas, Table 3.0**.

3.4. Environmentally Sensitive Areas

3.4.1. Policy and Objectives

As a state agency, WSDOT is committed to conducting its activities in accordance with the dictates of sound environmental protection practices. This includes pollution prevention, avoid, minimize and appropriately mitigate adverse environmental impacts, and to comply with all environmental laws and regulations applicable to our business and activities.

Numerous environmentally sensitive areas occur within NC, Region Area 2, such as lakes, streams and wetlands. Special care will be taken to avoid and minimize impacts to these resources. Herbicide applications in these areas will follow normal label requirements. Other IVM treatments that take place in these areas, such as mowing or revegetation efforts will be subject to the Regional Road Maintenance Endangered Species Act Program Guidelines.

In compliance with the Regional Road Maintenance Endangered Species Act Program Guidelines, as agreed upon with the National Marine Fisheries Service, WSDOT has identified, mapped and located in the field all highway sections within 300 feet of rivers, wetlands and water bodies.

3.4.2. Locations

Environmentally sensitive areas are identified in the field with green guideposts and identified in an area atlas. For more information on the Regional Road Maintenance ESA Program Guidelines refer to http://www.wsdot.wa.gov/maintenance/roadside/esa.htm or contact Sandy Stephens at 360.705.7853.

3.5. Storm Water Management Facilities

3.5.1. Policy and Objectives

Storm water management facilities include bio-filtration, swales, retention ponds and infiltration ponds.

Storm water management facilities will be managed for noxious and nuisance weeds following the same guidelines mentioned in previous sections. The primary objectives, with regard to vegetation management within these facilities, are to maintain retention and detention functions to improve water quality.

3.5.2. Activities and Methods

Noxious weed control will be conducted at all storm water management facilities as necessary. Control of nuisance weeds will be coordinated with nuisance weed control along the adjacent roadside. Trees and brush should be cleared along both sides of the perimeter fencing for a width of approximately 8 feet as needed. Inlets and outfalls should be kept clear of unwanted vegetation and debris as well.

Refer to vegetation management prescriptions for specific weed, tree and brush species in Sections 1 and 2 of this document for timing and control methods.

Currently there are no active storm water management facilities in NC Region, Area 2.

3.6. Wetland Mitigation Sites

3.6.1. Policy and Objectives

Wetland mitigation results from unavoidable impacts to naturally occurring wetlands from highway construction. In these cases new wetlands are created on WSDOT right of way and vegetation is managed to provide environmental functions similar to those eliminated in other areas by the highway's presence.

Wetland mitigation sites are carefully monitored for up to 10 years following their creation to ensure compliance with environmental regulation. In most cases vegetation in these sites is planted and established through the construction process so the maintenance actions are not required unless noxious weeds or hazardous trees become an issue. However, it is important that maintenance be aware of the locations of wetland mitigation sites to avoid impacting the required environmental functions of the sites.

Currently there are no known wetland mitigation sites within the operational right of way in NC Region, Area 2.

Appendix A
IVM Prescriptions

Routine Maintenance Activities

Zone 1 Maintenance - *Annual maintenance, (Option A)*

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
gravel shoulder or guardrail sections	4' vegetation free zone	annual herbicide application	spray truck w/ fixed nozzle mounted 18" from ground	non-selective residual herbicide Karmex DF @ 10lbs per acre Spike 80 DF @ 3lbs per acre	Fall and/or Spring	none required

Zone 1 Maintenance - *Annual maintenance (Option B)*

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
gravel shoulder or guardrail sections	4' vegetation free zone	annual herbicide application	spray truck w/ fixed nozzle mounted 18" from ground	non-selective residual herbicide Portfolio @ 5.33 Ozl Karmex DF @ 5 lbs	Fall and/or Spring	none required

Zone 1 Maintenance - *Annual maintenance (Option C)*

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
gravel shoulder or guardrail sections	4' vegetation free zone	annual herbicide application	spray truck w/ fixed nozzle mounted 18" from ground	non-selective residual herbicide Karmex DF @ 8 lbs	Fall and/or Spring	none required

Zone 1 Maintenance - *Annual maintenance on I-90 medians (Option A)*

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
gravel shoulder or guardrail sections	4' vegetation free zone	annual herbicide application	spray truck w/ fixed nozzle mounted 18" from ground	non-selective residual herbicide Pendulum 3.3EC @ 76 ozl/acre	Fall and/or Spring	none required

Zone 1 Maintenance - *Annual maintenance on I-90 medians (Option B)*

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
gravel shoulder or guardrail sections	4' vegetation free zone	annual herbicide application	spray truck w/ fixed nozzle mounted 18" from ground	non-selective residual herbicide karmex DF @ 4 lbs Pendulum WDG @ 96 ozd	Fall and/or Spring	none required

Zone 1 Maintenance - *Sensitive Areas (Option A)*

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
gravel shoulder or guardrail sections	4' vegetation free zone	annual herbicide application	spray truck w/ fixed nozzle mounted 18" from ground	non-selective Roundup-Pro @ 32 ozd Chemtrol @ 24 ozl	Fall and/or Spring	none required

Zone 1 Maintenance - *Sensitive Areas (Option B, Spring)*

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
gravel shoulder or guardrail sections	4' vegetation free zone	annual herbicide application	spray truck w/ fixed nozzle mounted 18" from ground	non-selective Payload @ 8 oz Oust or Landmark @ 3-4 Oz	Spring	none required

Routine Maintenance Activities

Zone 1 Maintenance - *Sensitive Areas (Option C, Fall)*

Location Type	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
gravel shoulder or guardrail sections	4' vegetation free zone	annual herbicide application	spray truck w/ fixed nozzle mounted 18" from ground	non-selective Payload @ 10 oz Oust or Landmark @ 3-5 Oz	Fall	none required

Noxious Weed Control

Noxious Weed Control - *Noxious Broadleaf Weeds (Option A)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Zones 2-3	as soon as plants appear	Selective eradication and control of listed noxious weeds.	spot treatment w/ herbicide most effective	tank sprayer equipped with Invert system, Injection system tank mix or back pack sprayer	Buctril @ 32 ozl Vista @ 16 ozl MSO @ 32 ozl chemtrol @ 24 ozl	Early growing season	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Noxious Weed Control - *Noxious Broadleaf Weeds (Option B)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Zones 2-3	as soon as plants appear	Selective eradication and control of listed noxious weeds.	spot treatment w/ herbicide most effective	tank sprayer equipped with Invert system, Injection system tank mix or back pack sprayer	Amine 4 @ 64 ozl Vanquish @ 24 ozl Actamaster DF @ 6.8 lbs	Early growing season	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Noxious Weed Control - *Noxious Weeds In Sensitive Areas*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Zones 2-3	as soon as plants appear	Selective eradication and control of listed noxious weeds.	spot treatment w/ herbicide most effective	tank sprayer equipped with Invert system, Injection system tank mix or back pack sprayer	Roundup-Pro @ 32 ozd Actamaster DF @ 6.8 lbs	Early growing season	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Noxious Weed Control - *Dalmation Toadflax, Knapweed Species*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Zones 2-3	as soon as plants appear	Selective eradication and control of listed noxious weeds.	spot treatment w/ herbicide most effective	tank mix or back pack sprayer	Tordon 22K @ 32 ozl LI-700 @ 5.3 ozl	Early growing season	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Noxious Weed Control - *Dalmation toadflax (Biological)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones	as soon as plants appear	eradication and control of listed noxious weeds.	Biological Place 2 biocontrol agents (bugs) per plant	hand placement	Mecinus janthinus	Early growing season	Monitor population and reapply as needed document in IVM form

Noxious Weed Control - *Purple loosestrife (Biological)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones	as soon as plants appear	eradication and control of listed noxious weeds.	Biological Place 2 biocontrol agents (bugs) per plant	hand placement	Galerucella calmariensis	Early growing season	Monitor population and reapply as needed document in IVM form

Noxious Weed Control

Noxious Weed Control - *Knapweeds (Biological)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones	as soon as plants appear	eradication and control of listed noxious weeds.	Biological Place 2 biocontrol agents (bugs) per plant	hand placement	Larinus minutus Larinus obtusus	Early growing season	Monitor population and reapply as needed document in IVM form

Noxious Weed Control - *Kochia, Knapweeds, Dalmation Toadflax, Thistle (Mechanical)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
Zones 2-3	Weed height exceeds 8"	Reduce or eliminate seed production of weeds	Mow vegetation at 8" to eliminate or reduce production of seeds	Mower	None	Prior to weed seed development	Re-mow as needed or follow up with herbicide, many plants will still produce seeds without follow-up treatment.

Tree and Brush Control

Tree and Brush Control - *Alder, Maple, Cottonwood (trees under 6' ht.)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
zone 2	as soon as seedlings become visible w/in 30' of fog line (no guardrail present)	control of seedling trees that may impact roadside function if allowed to grow.	selective foliar treatment w/ herbicide	truck mounted sprayer where possible, backpack sprayer where necessary	Garlon 3A w/ Redi-vert at label rate. Krenite S on alder at recommended label rates	late fall to avoid brown out	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Tree and Brush Control - *Alder, Maple, Cottonwood (trees over 6' ht.)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
zone 2	whenever trees are likely or have potential to grow and fall on the highway	control of young trees that may impact roadside function if allowed to grow.	hand cutting, treatment of cut surface w/ herbicide chip debris in zone 2	power saws, loppers, chipper, backpack or hand-held sprayer	Garlon 4 at label rate for cut-stump treatment	anytime	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Tree and Brush Control - *Conifers (trees under 2' ht.)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
zone 1 or 2	as soon as seedlings become visible w/in 30' of fog line (no guardrail present)	control of seedling trees that may impact roadside function if allowed to grow.	foliar treatment w/ herbicide	tank sprayer where possible, backpack sprayer where necessary	Garlon 4, Escort, or Krenite S at labeled rates apply w/ Redi-vert when possible	mid summer when new growth is present	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Tree and Brush Control - *Conifers (trees under 2' ht.)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
zone 1 or 2	as soon as seedlings become visible w/in 30' of fog line (no guardrail present)	control of seedling trees that may impact roadside function if allowed to grow.	hand pulling transplant if possible	Weed Wrench optional	Mechanical	anytime	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Tree and Brush Control - *Conifers (trees over 2' ht.)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
zone 2 or 3	whenever tree has been identified as defective or likely to fall on the highway	control of trees that may impact roadside function if allowed to grow.	hand cutting chip debris in zone 2 if necessary	power saws, chipper,	Mechanical	anytime	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Nuisance Weed Control

Nuisance Weed Control - *Mustard Species, Mullen, Teasel, China Lettuce and other Nuisance species (A)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones new or limited infestations	When infestation impacts private, public resources (dependent on available resources)	minimize populations and prevent further spread of nuisance weeds	foliar treatment w/ herbicide	truck mounted sprayer where possible, backpack sprayer where necessary	Veteran 720 @ 64 Oz! Escort @ .5 Ozd	prior to seed	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Nuisance Weed Control

Nuisance Weed Control - *Mustard Species, Mullen, Teasel, China Lettuce and other Nuisance species (B)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones new or limited infestations	When infestation impacts private, public resources (dependent on available resources)	minimize populations and prevent further spread of nuisance weeds	foliar treatment w/ herbicide	truck mounted sprayer where possible, backpack sprayer where necessary	Veteran 720 @ 64 Ozl	prior to seed	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Nuisance Weed Control - *Mustard Species, Mullen, Teasel, China Lettuce and other Nuisance species (C)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones new or limited infestations	When infestation impacts private, public resources (dependent on available resources)	minimize populations and prevent further spread of nuisance weeds	foliar treatment w/ herbicide	truck mounted sprayer where possible, backpack sprayer where necessary	Curtail @64 Ozl Escort @ .5 Ozd	prior to seed	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Nuisance Weed Control - *Mustard Species, Mullen, Teasel, China Lettuce and other Nuisance species (D)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones new or limited infestations	When infestation impacts private, public resources (dependent on available resources)	minimize populations and prevent further spread of nuisance weeds	foliar treatment w/ herbicide	truck mounted sprayer where possible, backpack sprayer where necessary	Gordon 22K @ 16 ozl Escort XP @ .5 ozd	prior to seed	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Nuisance Weed Control - *Mustard Species, Mullen, Teasel, China Lettuce and other Nuisance species (E)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones new or limited infestations	When infestation impacts private, public resources (dependent on available resources)	minimize populations and prevent further spread of nuisance weeds	foliar treatment w/ herbicide	truck mounted sprayer where possible, backpack sprayer where necessary	Transline @ 16 ozd Escort XD @ 1 ozd	prior to seed	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Nuisance Weed Control - *Mustard Species, Mullen, Teasel, China Lettuce and other Nuisance species (F)*

Location Type	Action Threshold	Management Goal	Method	Equipment	Materials	Timing	IVM Follow-up
all zones new or limited infestations	When infestation impacts private, public resources (dependent on available resources)	minimize populations and prevent further spread of nuisance weeds	foliar treatment w/ herbicide	truck mounted sprayer where possible, backpack sprayer where necessary	Roundup-Pro @ 64 ozd	prior to seed	Reapply as necessary. Seed and fertilize to reduce weed competition See Appendix B

Mowing Prescriptions

Note: Mowing should be accomplished to meet specific goals and objectives specified in the "Management Goal" section below.

Zone 2 Maintenance - Weed seed Control

Location Type	Management Goals	Method	Equipment	Timing	Planning and Follow-up
As needed in Zone 2 or 3	1) Limit noxious weed seed production 2) Improve roadside vegetation 3) Control of annual weeds 5) Improve conditions for desirable species	Mow single pass at 10-12 inches	mower, attenuator	Mowing should take place late in the growth cycle of the target plant species but prior to seed development. This will limit regrowth and potential seed production.	1) Communicate goals with operator prior to undertaking operation 2) Inspect after operation is complete to ensure target species are controlled and seeds have not developed

Zone 2 Maintenance - Crop/Sensitive Area

Location Type	Management Goals	Method	Equipment	Timing	IVM Follow-up
As needed in Zone 2 or 3	1) Limit noxious weed seed production 2) Improve roadside vegetation 3) Control of annual weeds 4) eliminate potential risk of herbicide application. 5) Improve conditions for desirable species	Mow single pass at 10-12 inches	mower, attenuator	Mowing should take place late in the growth cycle of the target plant species but prior to seed development. This will limit regrowth and potential seed production.	1) Communicate goals with operator prior to undertaking operation 2) Inspect after operation is complete to ensure target species are controlled and seeds have not developed

Zone 2 Maintenance-Safety/Sight Distance

Location Type	Management Goals	Method	Equipment	Timing	IVM Follow-up
As needed in zone 1, 2 or 3	1) Improve sight distance for safety 2) Incidental control of annual noxious weeds 3) Incidental control of seed production 5) Improve conditions for desirable species	Mow single pass at 10-12 inches	mower, attenuator	Mowing should take place as late in the growing season as possible while still maintaining good sight distance	1) Communicate goals with operator prior to undertaking operation 2) Monitor area for regrowth and adequate sight distance 3) re-mow as necessary to provide safe sight distance

Zone 2 Maintenance- Remove Overstory (old weed debris)

Location Type	Management Goals	Method	Equipment	Timing	IVM Follow-up
As needed in Zone 2 or 3	1) Remove old vegetation debris in order to control emerging weeds 2) Remove old vegetation debris that may be restricting desirable grasses 3) Improve conditions for desirable species	Mow single pass at 10-12 inches	mower, attenuator	Mowing should take place late fall/winter after grass is dormant	1) Communicate goals with operator prior to undertaking operation

Zone 2 Maintenance- New Seeding

Location Type	Management Goals	Method	Equipment	Timing	IVM Follow-up
As needed in Zone 1, 2 or 3	(1 Reduce weed pressure (2 Improve roadside vegetation (3 Eliminate weed seed source	Mow single pass maintaining deck height above desirable grass	mower, attenuator	Prior to seed set of weed species or when needed to reduce competition with desirable species	1) Communicate goals with operator prior to undertaking operation 2) Inspect after operation is complete to ensure target species are controlled

Planting Area A

Note: Seed mixes are listed as Pounds Live Seed not bulk rate.

Planting Prescriptions

Seed Mix 1 *(George/Moses Lake Vicinity)*

Seed Mix Description: This is a general roadside seed mix for the George Vicinity. Additional species may be appropriate for this area depending on planting location in relation to the roadway, soil type, and management goals.

Grass Species	Pounds Pure Live Seed (PLS) Per Acre
Bluebunch Wheatgrass "Wahluke" *(Pseudoroegneria spicata)*	10.63
Sandberg Bluegrass "Hanford" (*Poa sandbergii*)	0.41
Thickspike Wheatgrass "Schwindemar" *(Agropyron trachycaulum)*	4.64
Sand dropseed (*Sporobolus cryptandrus)*	0.03
Total Lbs PLS/Acre	15.71
Bulk Rate Per Acre (Drill Seed)	**20.00**
Total Lbs PLS/Acre	23.50
Bulk Rate Per Acre (Hydroseed)	**30.00**

Planting Prescriptions

George Vic. Optional Species
Grass Species Basin Wildrye *(Elymus cinereus)* Needle and Thread Grass *(Achillea millefolium)* Indian Ricegrass "Nezpar" *(Oryzopsis hymenoides)* **Optional Shrubs and Forb Species** Rubber Rabbitbrush *(Chrysothamnus nauseosus)* Basin Big Sage *(Artemesia tridentata)* Snowy Buckwheat *(Eriogonum niveum)* Yarrow *(Achillea millefolium)* Arrow-leaf Balsamroot *(Balsamorhiza sagittata)*

Appendix B
Herbicide Guidelines

Appendix C
Weed Locations

North Central Region Area 2

Noxious Weed Locations
Map 1 of 2

Grant County

Soap Lake
Ephrata
Wilson Creek
Quincy
George
Moses Lake
Warden

Legend

- Yellow Nutsedge
- Perennial Pepperweed
- Dalmation Toadflax
- Puncturevine
- Purple Loosestrife
- Knapweed
- State Route
- County Boundaries
- City Limits
- NCR Area 2
- 75 Mile Post Marker

0 5
Miles

N

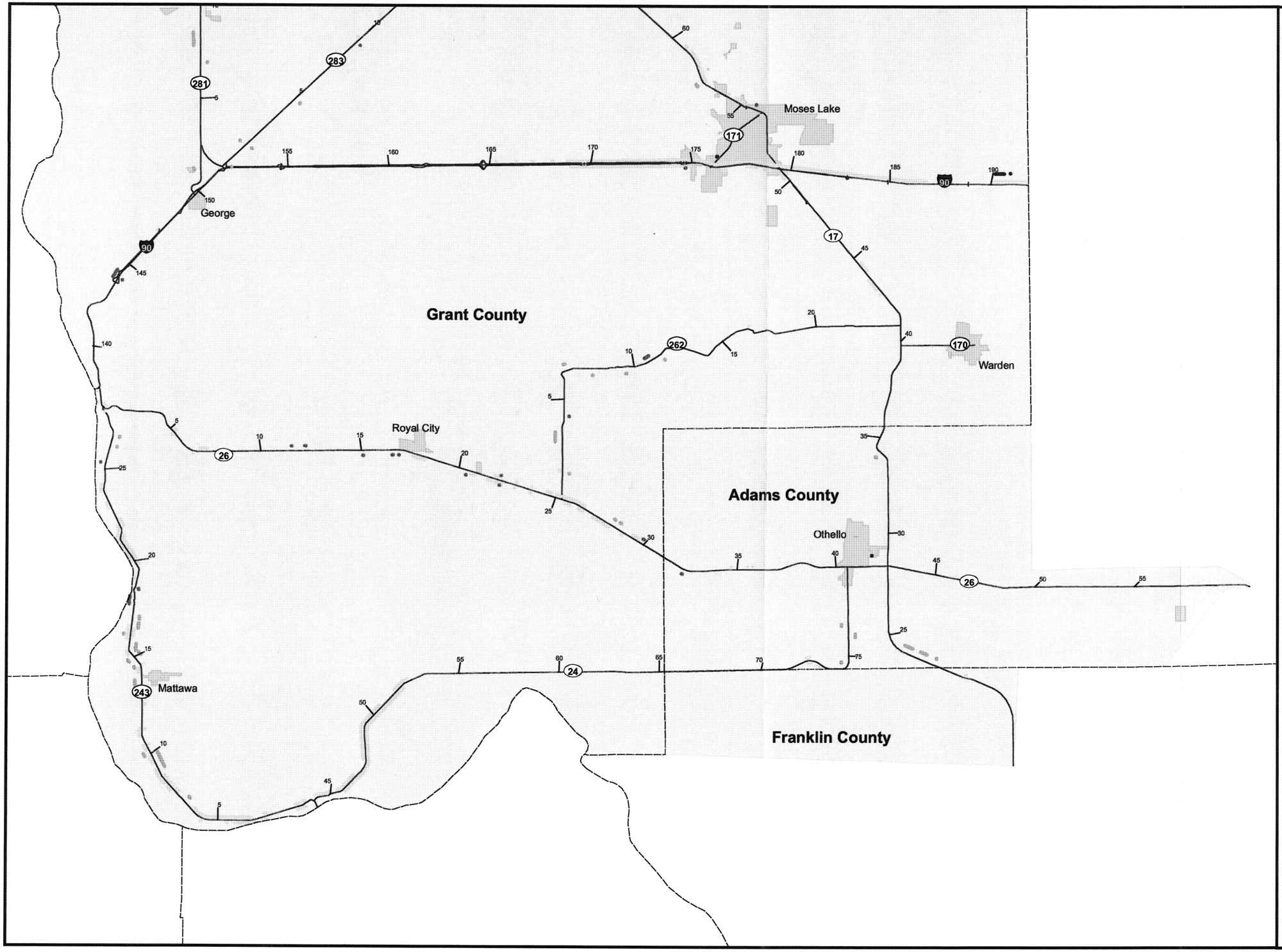
Washington State Department of Transportation

01/26/2006

GISWorkbench.mxd/ Date Printed

North Central Region Area 2

Noxious Weed Locations
Map 2 of 2



Legend

- Yellow Nutsedge
- Perennial Pepperweed
- Dalmation Toadflax
- Puncturevine
- Purple Loosestrife
- Knapweed
- State Route
- County Boundaries
- City Limits
- NCR Area 2
- 75 Mile Post Marker

0 5
Miles

N

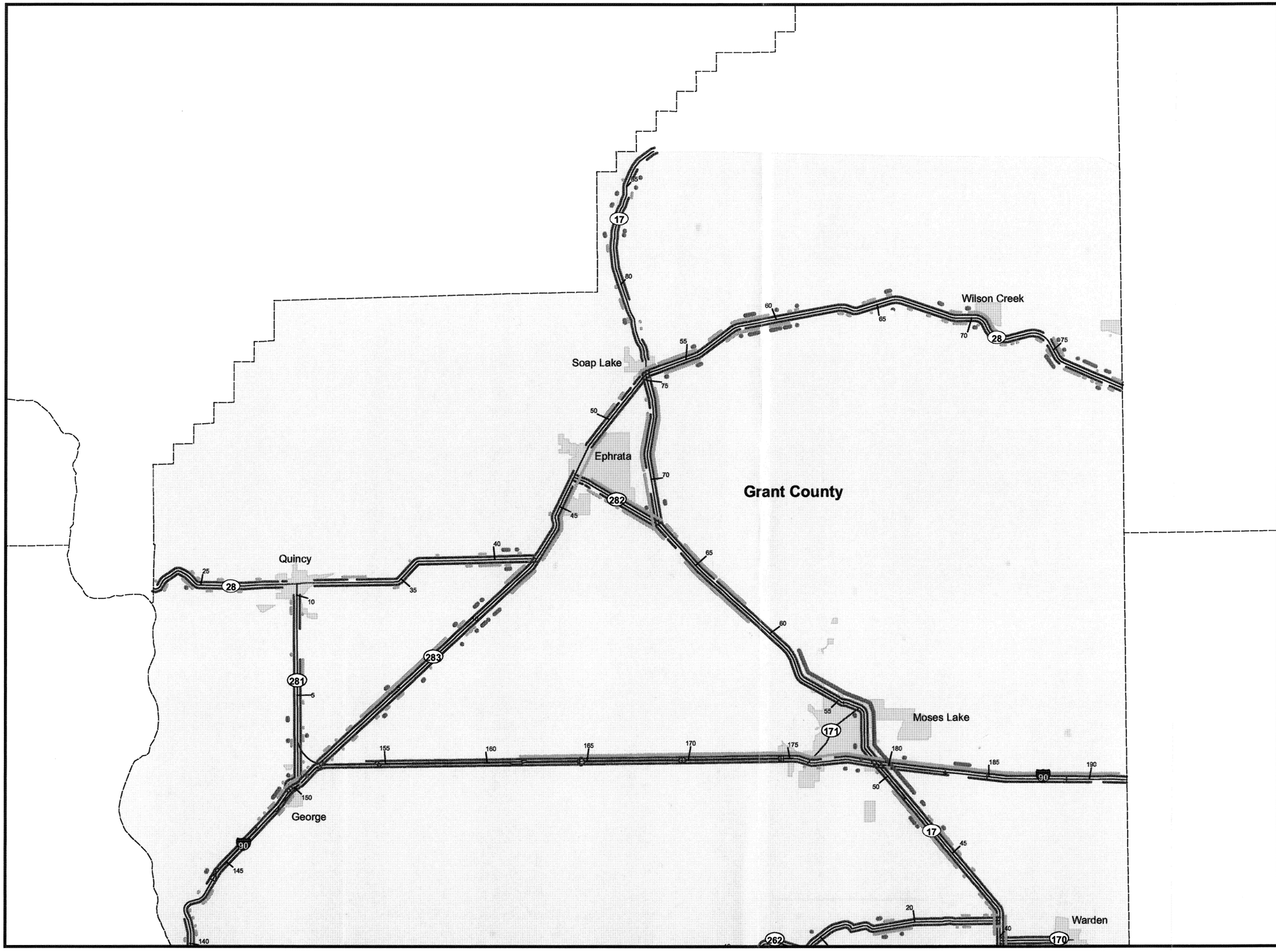
Washington State Department of Transportation

01/26/2006

GISWorkbench.mxd/ Date Printed

North Central Region Area 2

Nuisance Weed Locations
Map 1 of 4



Legend

- BullThistle
- Mullein
- China Lettuce
- Kochia
- State Route
- County Boundaries
- City Limits
- NCR Area 2
- 75 — Mile Post Marker

0 5
Miles

N

Washington State Department of Transportation

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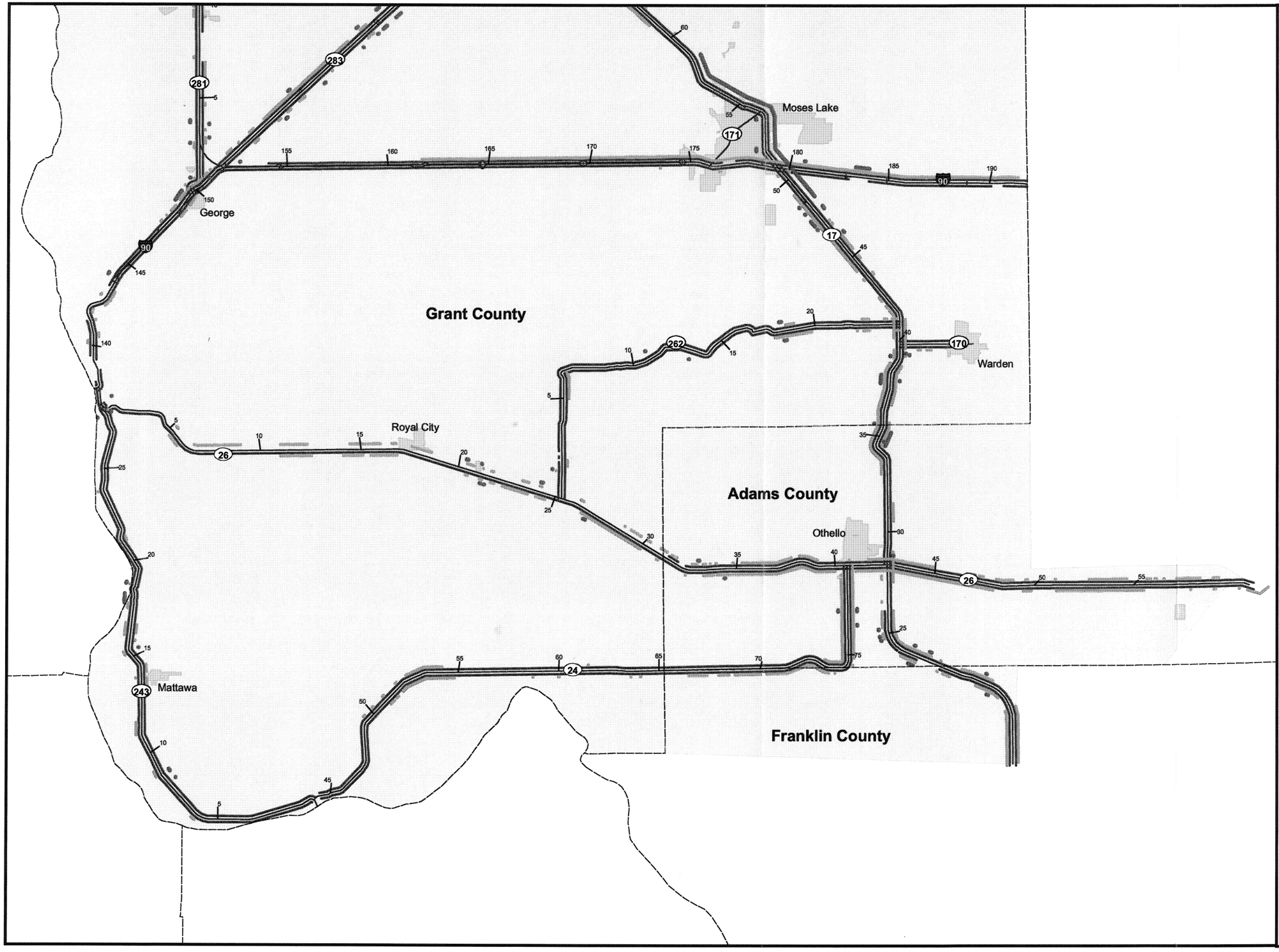
North Central Region Area 2

Nuisance Weed Locations
Map 2 of 4



Legend

- BullThistle
- Mullein
- China Lettuce
- Kochia
- State Route
- County Boundaries
- City Limits
- NCR Area 2
- 75 — Mile Post Marker

0 5
Miles

N

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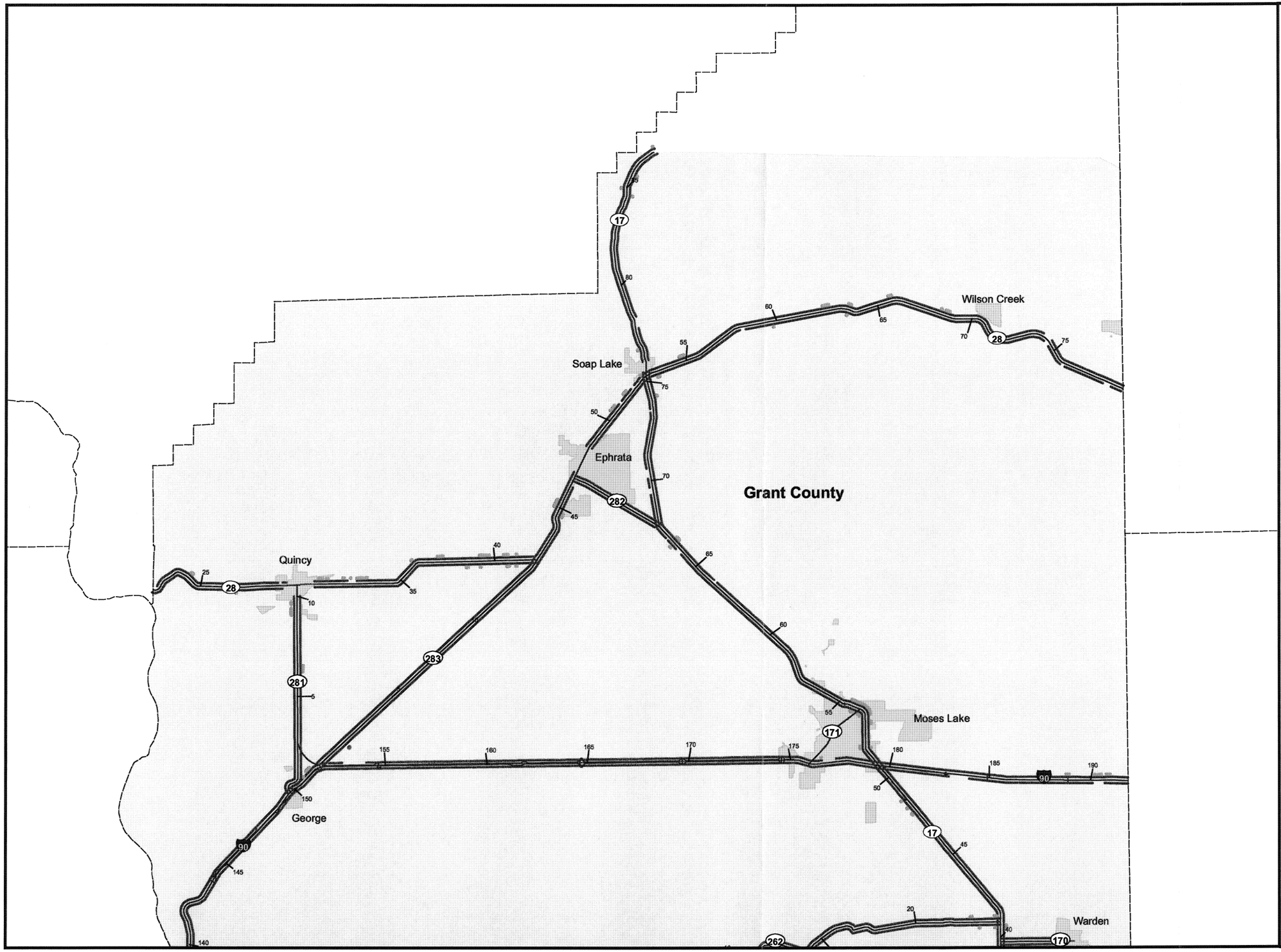
North Central Region Area 2

Nuisance Weed Locations
Map 3 of 4



Legend

- Sanbur
- Canada Thistle
- Russian Thistle
- State Route
- County Boundaries
- City Limits
- NCR Area 2
- 75 — Mile Post Marker

0 5
Miles

N

Washington State Department of Transportation

01/26/2006

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North Central Region Area 2

Nuisance Weed Locations
Map 4 of 4

Grant County

Adams County

Franklin County

Moses Lake

George

Royal City

Warden

Othello

Mattawa

Legend

- Sanbur
- CanadaThistle
- Russian Thistle
- State Route
- County Boundaries
- City Limits
- NCR Area 2
- 75 NCarea2_MileBy5

0 5
Miles

N

Washington State Department of Transportation

01/26/2006

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Appendix D
Special Maintenance Areas

Table 3.0

SR	Direction	Shoulder	Beg MP	End MP	Type
017	Both	RS	50.35	55.32	City of Moses lake
017	Both	RS	55.90	56.55	City of Moses lake
017	Both	RS	75.44	76.45	City of Soap lake
017	Both	RS	59.02	59.19	Rocky Ford Creek
017	Both	RS	84.76	85.77	Sun Lakes State Park
017	Both	RS	92.27	94.81	Sun Lakes State Park
017	Both	RS	82.94	84.43	Sun Lakes Wildlife Area
017	Both	RS	81.16	81.65	Sun Lakes-Dry Falls State Park
017	Both	RS	91.93	92.07	Sun Lakes-Dry Falls State Park
017	Both	RS	95.99	96.56	US Bureau of Reclamation
017	Both	RS	87.94	89.61	US Fish and Wildlife Services
017	Both	RS	90.77	92.27	US Fish and Wildlife Services
024	Both	RS	78.52	79.64	City of Othello
024	Both	RS	43.77	53.23	Saddle Mt. Nat. Wildlife Refuge
024	Both	RS	53.30	65.81	US Bureau of Land Management
024	Both	RS	65.81	69.09	US Bureau of Reclamation
026	Both	RS	40.06	41.61	City of Othello
026	INC	RS	55.50	56.50	Organic Farm
028	Both	RS	44.57	49.14	City of Ephrata
028	Both	RS	27.87	30.63	City of Quincy
028	Both	RS	52.40	52.61	City of Soap lake
028	DEC	RS	55.30	55.07	Neighbor Maintained
028	DEC	RS	62.03	61.96	Neighbor Maintained
028	Both	RS	77.09	77.56	US Bureau of Land Management
028	Both	RS	23.42	24.00	US Bureau of Reclamation
028	Both	RS	43.43	43.74	US Bureau of Reclamation
028	Both	RS	57.60	57.64	US Bureau of Reclamation
090	Both	RS	157.64	158.15	Desert Wildlife Area
090	INC	RS	164.51	165.00	I/C Dodson Rd
090	DEC	RS	164.84	164.28	I/C Dodson Rd
090	INC	RS	151.33	151.99	I/C Ephrata/Soap Lake
090	DEC	RS	174.81	174.29	I/C Exit 174
090	INC	RS	169.36	170.10	I/C Hiawatha Rd
090	DEC	RS	169.98	169.31	I/C Hiawatha Rd
090	INC	RS	175.69	176.31	I/C Moses Lake
090	DEC	RS	176.29	175.72	I/C Moses Lake
090	INC	RS	179.20	179.73	I/C Moses Lake Othello
090	DEC	RS	179.72	179.10	I/C Moses Lake Othello
090	INC	RS	184.63	185.14	I/C O Rd
090	DEC	RS	185.14	184.69	I/C O Rd
090	INC	RS	149.46	150.06	I/C Quincy/Wenatchee
090	DEC	RS	151.99	151.16	I/C Quincy/Wenatchee
090	DEC	RS	150.05	149.47	I/C Quincy/Wenatchee
090	INC	RS	143.44	144.22	I/C Silica Rd
090	DEC	RS	144.22	143.42	I/C Silica Rd
090	INC	RS	188.60	189.17	I/C Warden
090	DEC	RS	189.17	188.43	I/C Warden
090	INC	RS	182.75	183.10	I/C Wheeler
090	DEC	RS	183.09	182.66	I/C Wheeler

Table 3.0

SR	Direction	Shoulder	Beg MP	End MP	Type
090	Both	RS	168.16	168.67	Potholes Wildlife Area
090	Both	RS	141.76	141.84	Quincy Wildlife Area
090	DEC	RS	138.20	137.76	Ramp from SR 26
090	INC	RS	154.61	154.98	Ramps towards Adams Rd
090	DEC	RS	154.60	154.16	Ramps towards Adams Rd
090	INC	RS	137.68	138.10	Ramps towards SR 26
090	Both	RS	139.66	140.66	US Bureau of Reclamation
090	Both	RS	161.62	161.87	Winchester Wildlife Area
155	Both	RS	26.21	28.05	National Park Service
155	Both	RS	6.21	6.43	US Bureau of Land Management
155	Both	RS	7.85	8.04	US Bureau of Land Management
155	Both	RS	11.31	11.87	US Bureau of Land Management
155	Both	RS	16.27	16.43	US Bureau of Land Management
155	Both	RS	16.72	17.08	US Bureau of Land Management
155	Both	RS	17.18	17.55	US Bureau of Land Management
155	Both	RS	17.88	18.16	US Bureau of Land Management
155	Both	RS	19.27	20.55	US Bureau of Land Management
155	Both	RS	2.03	4.37	US Bureau of Reclamation
155	Both	RS	15.40	16.16	US Bureau of Reclamation
155	Both	RS	24.25	25.73	US Bureau of Reclamation
170	Both	RS	2.53	3.68	City of Warden
171	Both	RS	0.00	3.79	City of Moses lake
174	Both	RS	19.70	20.50	National Park Service
174	Both	RS	21.42	21.66	US Bureau of Reclamation
243	DEC	RS	19.65	19.59	Neighbor Maintained
243	DEC	RS	18.60	18.34	Neighbor Maintained
243	DEC	RS	18.12	17.69	Neighbor Maintained
243	Both	RS	28.23	28.01	Neighbor Maintained
243	Both	RS	0.00	3.77	Saddle Mt. Nat. Wildlife Refuge
243	Both	RS	17.60	18.62	SR along Columbia River
243	Both	RS	18.19	19.29	US Bureau of Land Management
243	Both	RS	3.77	4.76	US Bureau of Reclamation
243	Both	RS	5.48	5.61	US Bureau of Reclamation
262	DEC	RS	13.85	13.86	Neighbor Maintained
262	Both	RS	0.00	7.00	Orchard close to SR
262	Both	RS	11.92	13.92	Potholes Wildlife Area
262	Both	RS	14.51	17.80	Potholes Wildlife Area
262	Both	RS	18.32	19.31	Potholes Wildlife Area
262	Both	RS	19.99	22.10	Potholes Wildlife Area
262	Both	RS	5.71	6.26	US Bureau of Reclamation
281	Both	RS	9.77	10.55	City of Quincy
282	Both	RS	0.00	0.20	City of Ephrata

Table 3.2.2

Restoration Plots

I-90 George Interchange

Location Type	Management Goal	Method	Materials/Equipment	Timing	IVM Follow-up
Median Restoration	1. Control Kochia and Russian Thistle 2. Reduce herbicide use 3. Establish planting techniques 4. Evaluate species selection 5. Evaluate use of Biosol	1.Soil sample 2.Mechanically weed debris 3. Spray out weeds including cheat in late winter/early fall 4.Cultivate if needed 5. drill seed in late winter/early spring 6.Monitor throughout growing season 7. Treat with Buctrill + Vista as needed to control weeds 8.Biosol fert. in strips for evaluation 9.document site/experience	Grass Drill, Seed, Fertilizer, Soil Test, Buctril/Vista, Biosol, Pasture drag	Spring summer weed control during 2005, plant in lat winter/early spring 2006, add nutrients as needed in spring-early summer, control weeds throughout growing season.	Monthly throughout growing season to evaluate goals

I-90 Murphies Corner

Location Type	Management Goal	Method	Materials/Equipment	Timing	IVM Follow-up
Median Restoration	1. Control Kochia and Russian Thistle, cheatgrass 2. Reduce herbicide use 3. Establish planting techniques 4. Evaluate species selection 5. evaluate Plateau Herbicide use for Cheat control	1.Soil sample 2.Mechanically weed debris 3. Spray out weeds including cheat in late winter/early spring 4.Apply Plateau in plots before and after seeding 5. drill seed in late winter/early spring 6.Monitor throughout growing season 7. Treat with Buctrill + Vista as needed to control weeds 8.Biosol fert. in strips for evaluation 9.document site/experience	Grass Drill, Seed, Fertilizer, Soil Test, Buctril/Vista, Biosol, Pasture drag, tractor, spray equipment	Spring summer weed control during 2005, plant in lat winter/early spring 2006, add nutrients as needed in spring-early summer, control weeds throughout growing season.	Monthly throughout growing season to evaluate goals

Appendix E
Forms and Records

Washington State Department of Transportation

Integrated Vegetation Management Record

Org. Code	County	Date		Vegetation Management Zone(s)
425210	grant	3/10/2005		☐ Zone 1 ☒ Zone 2 ☒ Zone 3

Area: SR 28 MP 40 to MP 39.5

Location: Ephrata

Check Appropriate Boxes: ☐ NB ☐ EB ☐ SB ☒ WB ☒ Roadside ☐ Shoulder ☐ Median ☐ Landscaped Area ☐ Rest Area ☐ Park-n-Ride ☐ Interchange ☐ Bridge ☐ Ramp ☐ Mitigation Site ☐ Stormwater ☐ Yard/Stockpile

Third Party Damage: ☐ Yes

Sensitive Sites: ☐ Aquatic ☐ Wetlands

Target Species: ☐ Noxious Weeds ☐ Brush/Trees ☒ Other ☐ Nuisance Weeds ☐ Hazard Tree

List Target: Species: reseed program

Reason for Action:
☐ Noxious Weeds ☐ Nuisance Weeds ☐ Fire prevention ☐ Aesthetics
☐ Site Distance ☐ Hazard Vegetation ☐ Customer request ☒ Other

Long term IVM plan (Describe goals/objectives and a step-by-step approach over time)

area was disturbed and cleared as part of a project for yellow nutsage. we Reseeded the area on 3-5-05, and applied about 2300 gals. of water to area in an attempt to replace mositure we lost during ground preperation. the goal to this is to attempt to reclaim this ground in a stand of grass and push out the nutsage. this could be a challange. On 14 mar. 05 added 3000 gals of water to site

Approximate Acres to Accomplish: 2

Activities		Planned date of Treatment	Actual date of Treatment
Manual	☐ Digging ☐ Pulling ☐ Lopping ☒ Scalping ☐ Other		3-5-2005
Mechanical	☐ Arial Saw Work ☐ Tractor Brush Cutter ☐ Manual Brush Cutting ☐ Tractor Mower ☐ Other		
Bio-Control	☐ Insects ☐ pathogens ☐ Parasites — Type/Species		
Cultural	☐ Burning ☒ Grading ☐ Seeding ☐ Fertilizing ☐ Grazing ☒ Other		3-5-2005
Chemical	Record Number		

Evaluation of Previous Treatments

Monitor March 2006:

Monitor April 2006:

Washington State Department of Transportation

Pesticide Application Record

Reference (RCW 17.21) A new form shall be filled out each day or each time the Sign Route is changed.
This Record Must be Retained for 7 Years. This form must be completed on day of application.
WSDOT, Roadside Management Branch, P.O. Box 47358, Olympia, WA 98504-7358. Phone (360) 705-7853.

Org. Code	County	Date of Application	Start / Finish	ICP	Stores Issue Ticket Number(s)
425210	grant	6/2/2005	Start 1:30 ○ AM ◉ PM Finish 2:11 ○ AM ◉ PM	022A	E33969

Area
SR 17 MP 52.0 to MP 53.6 and MP ____ to MP ____ and MP ____ to MP ____ and MP ____ to MP ____

Check Appropriate Boxes

☐ NB ☐ EB ☒ SB ☐ WB

☒ Roadside ☒ Shoulder ☒ Median ☐ Landscaped Area ☐ Rest Area ☐ Park-n-Ride ☐ Interchange ☐ Bridge ☐ Ramp ☐ Yard/Stockpile

☒ Spot Spray ☐ Blanket Spray ☐ Banded Width ☐ Aquatic ☐ Wetlands

☐ Weeds ☒ Noxious Weeds ☐ Disease
☐ Brush ☐ Insects ☐ Other List Pest(s): Kocia canadian thistle

Start Weather Conditions
Temperature 77 °F(°C) Wind (Direction From) W Wind (Range) 1-2 mph(km/h)
○ Sunny ◉ Broken ○ Overcast, No Rain ○ Light, Scattered Showers ○ Hard Showers

Finish Weather Conditions
Temperature 78 °F(°C) Wind (Direction From) W Wind (Range) 1-2 mph(km/h)
○ Sunny ◉ Broken ○ Overcast, No Rain ○ Light, Scattered Showers ○ Hard Showers

Tank No.	Material Name	Material Type	EPA Reg. No.	Lot Number	Product Per Acre (hectare)	Unit	Total Daily Usage	Unit
2	Buctril 2EC	Pesticide	264-437	C755507	32	Ozl	32	Ozl
1	Chemtrol	Adjuvant		Bat-484	32	Ozl	32	Ozl
1	MSO	Adjuvant		78539	32	Ozl	32	Ozl
2	Vista	Pesticide	62719-308	TC04 169441	16	Ozl	16	Ozl
1	Water		----------	george	40	Gal	40	Gal
	Water		----------	ephrata	40	Gal	0	Gal

Total 1.0 **Acres(hectares) Treated at** 40 **gallons(liters) of spray per acre(hectare).**

Equipment Number	Tank Size	Calibration Date	Vehicle Speed	Nozzle Pressure	Width of Spray Pattern
8B29-21	1 1600 2 300 3 ____ 4 ____ 5 ____	6-2-05	5-7 mph(km/h)	20-23 PSI(kPa)	10-35 Feet(meter)

☐ Handspreader ☐ Backpack ☒ Handgun ☐ Fixed Nozzle ☒ Boom ☐ Other (Specify)

☒ Tank Mix (Conv.) ☒ Injection ☐ Invert

Operator Name	Operator Pesticide License No.	Operator Signature
Jeremy Walker	69438	

Driver Name: Randy Gundrson

Buffer Truck Driver's Name:

Remarks
very nice day to spray.
south bound shoulder, spot spray canadian thistel.

Pesticide Sensitivity Registration Applies: ☐ Yes ☐ No

Contacts

Division of Emergency Management (1-800-258-5990)

DOT Form 540-506 EF Revised 9/2001

Distribution: OSC Maint. Operator Region File
Send OSC Copy Within 5 Days

Ozd= Ounces Dry Lb= Pound g= gram kg=kilogram
Ozl= Ounces Liquid Ga= Gallon ml=Milliliter L= Liter
Pt=Pint Qt= Quart

Appendix F
Stakeholders List

Appendix F

Stakeholder List

Grant County Weed Board, PO Box 37, Ephrata, WA 98823.
Adams County Weed Board, 201 W. Broadway, Ritzville, WA 99169
Franklin County Weed Board, 3416 Stearman Avenue, Pasco, WA 99301
City of Ephrata, 121 Alder Street SW, Ephrata, WA 98823
City of Moses Lake, PO Box 1579, Moses Lake, WA 98837
City of Othello, 500 E. Main Street, Othello, WA 99344
City of Soap Lake, PO Box 1270, Soap Lake, WA 98851
City of Quincy,
City of George, PO Box 5277, George, Washington 98824
City of Connell, PO Box 1200, Connell, WA 99326-1200
City of Warden, PO Box 428, Warden, WA 98857
WDFW Region 2, 1550 Alder St. NW, Ephrata, WA 98823-9699
DNR Ellensburg, 713 E Bowers Road, Ellensburg, WA 98926
USBR, 1917 Marsh Road, Yakima, WA 98907-1749
Quincy Columbia Basin Irrigation Dist., Darvin Fales, PO Box 188, Quincy Wa 98848
East Columbia Irrigation Dist., Richard Erickson, PO Box "E", Othello Wa 99344